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HENRY C. PEARSON,
EDITOR.HAWTHORNE HILL,
ASSOCIATE.

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THE INDIA RUBBER PUBLISHING CO.

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A QUESTION OF PRICES.

THE fact that crude rubber has been sold lately at much lower prices than manufacturers were obliged to pay a few months ago has revived the question that follows every decline in rubber—why don't the prices of their products come down in proportion? We have just seen this question discussed at length in an important daily trade paper, but with the result of its missing the point entirely.

If a manufacturer should be stocked up with rubber bought at \$3 a pound he would feel obliged to realize a corresponding price for his goods made from that material, no matter how far the price of the crude might fall meanwhile. Again, if a manufacturer is contracting to-day for rubber at a reduced price, it may be weeks or months before it reaches the ultimate consumer, and it is the ultimate consumer who pays the price.

The rubber footwear makers are busy to-day turning out boots and shoes for sale to the public next winter, on contracts with jobbers booked as long ago as April. Already the prices of raw material have fluctuated this season to a most unusual degree, and more fluctuations may happen before winter again drives people to buy overshoes. But the manufac-

turers must fix prices before the goods are made, and this must be done on the theory of averages for the year that will yield a profit. Like conditions obtain in the matter of automobile tires, garden hose, or babies' rattles.

Unlike many articles of commerce, rubber goods are not sold at a base price subject to fluctuations in unmanufactured or crude materials; hence the impracticability of changing quotations with every rise and fall in the raw product.

CRUDE RUBBER POLITICS.

AT the Philadelphia Centennial International Exhibition, in 1876, among the exhibits from Mexico was a specimen of crude rubber obtained from a shrub not known before to yield this substance. Then as now rubber was regarded by manufacturers as too high priced, and every possible new source was regarded with interest. The Mexican shrub came in for much notice but, although recognized experts worked hard over the problem, it was practically thirty years before commercial results were obtained, through the marketing of the grade of rubber known everywhere to-day as "Guayule."

The introduction of guayule rubber has been of inestimable benefit to the world. Without it the price of other rubbers doubtless would have attained a much higher level; in other words, rubber goods would have cost the consumers very much more. The relative importance of guayule is indicated by the fact that of the total imports of crude rubber into the United States during the fiscal year ended June 30, 1910, of 101,044,681 pounds, no less than 23,486,384 pounds came from Mexico, and at least 22,000,000 pounds of this was guayule. This is, roundly, 22 per cent. of the whole.

It would seem reasonable that those who developed this important new supply of rubber should be congratulated upon conferring so important a benefit upon the public, not alone of the United States but wherever rubber goods are used. It is true that the pioneer experimenters and the investors in guayule rubber worked for their individual profit, but so do the workers in so many fields who in Europe are rewarded with orders of merit by their sovereigns.

In the case of the founders of the guayule interest in America, however, we see professional politicians trying to make capital out of the fact that a United States senator has invested some of his money in rubber, the implication being that his official position has been used for his individual profit and against the public welfare. And newspapers of influence have taken the matter up at length, indulging in such public insinuations as are calculated to sweep away the reputation of even the strongest of men.

We have no brief for the defense of anybody engaged in the preparation and sale of guayule or any other rubber. Many persons engaged in this business

have not found it to pay; some others have made profits, and this, of itself, does not occur to us to be intrinsically wrong. The size of one of the guayule companies has been spoken of in the press as a damaging fact. It is doubtful, however, if guayule would now be found on the market had not its production been undertaken on such a large scale as to require a great deal of capital.

The most amazing thing in the late outbreak about rubber in the daily press is the fact that in no case has appeared any evidence of any rubber man having been interviewed or approached for correct information on the subject. Considering how many intelligent men are connected with the rubber industry, and men willing to supply facts regarding it, there can be no excuse for such witless jumbles about rubber trusts and tariffs and profits as the newspaper reading public has been treated to lately.

THE TAPPING OF "CASTILLOA."

PLANTERS of *Castilloa* rubber six months ago were, many of them, quite discouraged. They did not acknowledge it to every one, but their trees were not producing the amount of rubber annually that they had counted upon. They were awakening to a knowledge of the fact that they could only tap the trees, once, twice, or possibly three times during the year profitably. Not that it killed the tree, but it did not show the same type of wound response that the *Hevea* did.

The remarkable rise in the price of crude rubber, however, put a premium on their efforts, and many of them are now making money. They have taken up very seriously the subject of scientific tapping, and it is a reasonable probability that the tree will eventually be proved profitable from a planting standpoint.

No man had put more thought upon this problem than the late Mr. J. B. Carruthers, of Trinidad. He argued that, as the tree does not show wound response, it should be practically drained of latex at one tapping, and then allowed to rest until the lactiferous tubes fill up again, whether it take three months, six months, or a year. Instead of stripping the bark with any sort of cutting tool, he suggested the use of a pricker that should puncture nearly every tube, an apron at the foot of the tree to catch the latex, and a jet of water, if necessary, as a vehicle to carry all of the latex down into the apron.

The suggestion is of much merit. Pricking the *Castilloa* bark, every square inch of it, from the ground to the first permanent branches, should not injure the tree in the least. The wounds ought to heal and leave practically no scar, and several times the present amount of latex be secured.

Were the problem solved along these lines it would be a great boon to the thousands who have invested

in *Castilloa* plantations throughout Mexico, the Central American states, and the West Indies.

For the encouragement of the *Castilloa* planter, the following is worth pondering upon: The scientific tapping of *Hevea* trees, for example, on the Linggi plantation, produced 10.7 pounds from 12 year old trees. By the native method of tapping the production probably would have been about 3 pounds. If, therefore, the *Castilloa* can be tapped scientifically there is no reason why a notable increase cannot be obtained over that secured by the present method.

THE PASSING OF THE "BATELAO."

THE *batelao* has been passing up and down the upper Madeira and some other streams of landlocked Bolivia for a long time, but very slowly. Perhaps the navigation of no rivers has ever been accomplished with such hardships and risk and relative expense. Soon we shall be able to chronicle the final passage of this peculiar boat of antique type.

On another page is given a photographic view of a *batelao* as it appeared on the rocks over which it was necessary to convey it for more than a mile around one of the many cataracts which interrupt the Madeira. No wonder fine Bolivian rubber has been so expensive when the *batelao* has had to be depended upon for transporting it to market.

A new régime, however, is being ushered in by the progress of the Madeira-Mamoré railway, details regarding which appear in these pages in connection with the picture of the *batelao*. The new railway has begun carrying rubber, having been completed, at last accounts, for 88 kilometers [=55 miles]. On June 26 it took on rubber at Jacy-Parana which it delivered to San Antonio five hours after it was received. The journey by *batelao* would require from five to six days at double the rates charged by the railroad. When one considers also the safety of transport, and the lack of shrinkage, it will be seen that the old time *batelao* will never be able to compete with the railroad,

THE CHEMIST IN THE RUBBER INDUSTRY.

IF one stops to think of the day when crude rubber was purchased principally on the strength of its general appearance, it seems hardly credible that such purchases are now made to a large extent with a chemists' analysis as a basis, and the day appears to be not far off when this control will be developed to such a degree that products possessing certain properties can be made and duplicated with mathematical nicety. Before the manufacturer can hope to obtain the best results he must, however, forget that a chemist is an "analyst," a mechanic who potters in chemicals. The true chemist, the man who has taken his post graduate course at college, is well equipped to take a "long

distance" view of the various processes and operations through which the rubber must pass. His systematically acquired knowledge of *chemical principles* enables him to discern defects and their causes long before the other man is aware of their existence.

There is another point which the manufacturer must bear in mind when he concludes to consult a chemist and have his raw materials and his processes examined. Money expended for professional advice is "capital invested" and should be so entered on the books—for the money spent in fees will enable the manufacturer to make better goods, sell more goods, and declare larger dividends. If he makes the error of entering these fees under the "expense account" he may during dull times be tempted to curtail these expenses, and thus strike at the very root of his welfare. The more progressive corporations in the leather, textile, and paper industries have long since realized the benefits to be derived from systematic chemical control of their processes and their raw materials.

It may be that many of the claims for damaged and defective goods could be eliminated and the cause remedied by retaining a qualified chemical engineer for a careful inspection of the works. We say chemical engineer, for a man who is to investigate industrial processes must at once have a knowledge of machines and the chemical operations which are carried out in those machines. It may be that here, as in other instances, no particular attention will be paid to chemical control until a lawsuit with its dire consequences is instituted by some particular dealer. Then suddenly the chemist will be called upon to "explain away" some of the more obvious defects.

AN INTERESTING ILLUSTRATION of a new tendency on the Amazon is to be found in the amount of space devoted to rubber culture in the excellent agricultural magazine, *A Lavourea Paraense*, published at Pará. A few years ago nothing on this subject was thought worth publishing in the land of "Pará" rubber; now full reports on rubber cultural progress everywhere are printed there, and, what is more, read with interest. The rubber lords of northern Brazil cannot afford to be outdistanced by the British in Asia.

A RECENT LIST OF PRODUCTS of an important rubber manufacturing company includes a page the heading of which carries the words "Low Grade" and "Not Warranted." This is interesting, because it is not usual. It is interesting, also, as typical of the growth of sound business morality. There are other goods in the list which are described as "high grade," and they are "warranted"; goods marked plainly with the name of the company, or with one of their widely advertised brands. But the "low grade" goods—openly offered as such, for people who want something at a low price—do not bear any indication of their source. We like the idea of the name of a company being reserved for use on its higher grade products, for otherwise purchasers unable to discriminate might be led, by the appearance of a well-known name, to buy inferior goods under the impression that the best was being obtained. We also like the idea of "low grade" goods being so described, for in this

case no one can be deceived. Of course, when it comes to the ultimate consumer, he must depend upon the honesty of the retailer, but we do not doubt that a better tone in business honesty is developing throughout every stage of trade, and that purchasers in general can depend upon being told whether any article, in staple lines, is "low grade" or "high grade." It is indispensable, of course, that goods should be made in different qualities to fit different purses or tastes, and no wrong is involved so long as the seller doesn't deceive his customers.

THE FACT THAT THE GOVERNMENT OF DUTCH GUIANA is now planting 500 acres to *Hevea* rubber draws attention to the possibilities of that country for the same sort of development that has taken place in the Far East. There are at present many going plantations that are producing cacao and sugar, where the land has been dyked and drained and upon which there are substantial plantation buildings. The partial failure of the cacao crop and the far greater profit in rubber has turned the attention of the planters to it. The movement seems to be in favor of a joint planting of bananas and rubber, there being a good market for the former now that the United Fruit Co. have established a regular weekly service between Paramaribo and New York. That the *Hevea Brasiliensis* will do well is proved in that a number of experimental plantings already exist. These plantations are about a dozen in number, the oldest containing some 300 trees ten years old recently producing 3 pounds contains 14,000 *Hevea* trees from 1 to 1½ years old. With a stable government and absolute freedom from unjust taxation, and a climate and soil fittest for such cultivation, it would seem likely that considerable will be done in rubber in the next five years. Added to all of the above is the government's assistance in providing British coolly labor under the indenture system. At only a normal cost to the planter it would seem that *Hevea* could not only be grown as well, but nearly as cheaply as in the Far East.

AMONG THE MANY LETTERS WHICH CONTINUE to reach THE INDIA RUBBER WORLD in relation to the articles on "*Castilloa* Rubber in Chiapas (Mexico)" by Mr. J. L. Hermessen, A. M. I. E. E., published in THE INDIA RUBBER WORLD earlier in the year one points out a misspelling in the issue of February 1 (page 163) of the name of the *Castilloa* species designated by Mr. O. F. Cook as *lactiflora*. The spelling in these pages, *lactiflora*, was due to an error in printing which the author had no opportunity to correct. Mr. Cook's report on species of the Central American rubber tree, by the way, appeared in *Science* (New York) XVIII: 436.

PROFITS OF WIRELESS.

AT the late annual meeting of Marconi's Wireless Telegraph Co., Limited, the reports showed a profit for the year 1909, in spite of the serious set back by the disastrous fire which destroyed the station at Glace Bay, Canada. This station has been rebuilt, leading to the resumption of their trans-atlantic service, and the prospects for the future are regarded as most favorable. The profit for the year was £11,432. Several of the wireless companies in which the Marconi company own an interest are beginning to show profits. The French company declared a dividend for the year of 5 per cent., and the Belgian company of 10 per cent. The directors recommended the payment of the cumulative 7 per cent. dividend upon the preference shares to June 30, 1909, and an intimation was given that before long an announcement of a similar dividend for the remaining six months of the year would be made. The capital outstanding ranking for dividend is £250,000.

The wireless service established to connect with the rubber district of the upper Madeira, mentioned on another page, is under the Marconi system.

RUBBER AND THE ELECTRICAL TRADE.

[FROM "THE ELECTRICAL REVIEW" (LONDON), JULY 24.]

RUBBER has now for some years been steadily rising in price as the demand has increased, furnishing as it does the basis for the manufacture of the thousand and one indispensable articles, from the cycle and motor tire to the pipe stem. That prices are so high is not only due, however, to the enormous consumption of rubber, but, so it seems to us, to the fact that even with the many sources of supply which have so far been available, the supply has not been nourished and tended as it might have been. In some cases, as everyone knows, rubber has been obtained in a haphazard fashion, and with a constant and ever-increasing drain upon the source and no corresponding replacement or replenishing, there has come the inevitable lessening in the yield.

It is now more difficult to obtain the raw material, since those concerned have been reaping much and sowing little. With the present boom in the flotation of so many new concerns to cultivate and produce rubber in various parts of the world, on a scientific and commercial basis, a few years should see the supply less uncertain and more easily obtained, and, consequently, prices ought then to recede to a more rational level.

In the meantime, electrical people see visions of larger wiring bills, for the price of vulcanized india-rubber cables and wires always rises in sympathy with that of rubber, and consumers are hard enough to get, in all conscience, even at present. Prime cost has long since ousted rubber insulation from the market for large cables, and, presumably, there is a point at which the vulcanized cable of a smaller size cannot compete with its rivals in the matter of price. For long life and efficiency a vulcanized rubber cable, with a well-tinned conductor and the insulation properly vulcanized, can hardly be surpassed, or even equalled, but cost is a factor which has little respect for old age or long service.

We do not suppose that rubber will ever be supplanted for use with the modern form of flexible cord, where the pure rubber strip is simply lapped on in conjunction with silk or cotton coverings, but it does seem that vulcanized rubber must soon give way for small cables, larger than, say 7/17's, and for such there is now another rival in addition to the paper lead-covered form. We have seen vulcanized bitumen or paper bitumen cables as small as the size mentioned above, and when it is remembered that this class of insulation is, like rubber, non-hygroscopic and needs no other covering than an ordinary tape and braid, it would appear that bitumen is likely to be the insulation of the future, where, up to date, the vulcanized india-rubber cable has more than held its own.

And bitumen has many good points. After being vulcanized or "cured," it is equal to rubber in homogeneity, and elastic enough to stand all bending to which the ordinary cable is subjected in erection. Exhaustive tests made on large bitumen cables, such as those used commonly in coal mines, have shown that the insulation is not appreciably affected by considerable pressure, so that decentralization cannot take place under the normal working conditions. One of the disadvantages, however, of this form of cable is that if not carefully constructed the conductor will be found slightly decentralized, and, of course, should such fault prove to be more than local, there may be a weak place in the cable which will provide the location of a future breakdown.

Joining affords some difficulty, though not more than is presented by other forms of insulation. Further, a paper insulated cable sheathed with bitumen, and protected by tape and braid or serving, ought certainly to have as long a life as the best grade rubber cable, since the former is free from the fatal chemical action which in the rubber cable spoils wire and insulation alike.

When copper is dear a fair sized paper cable always pays for stripping and reinsulating, whereas, on the other hand, the rubber

cable, no matter what the size, always finds its way to the scrap heap, *en bloc*.

Naturally, much depends upon the course taken by the price of the raw material in the near future. Even now the price is such as ought to attract a chancellor of the exchequer in search of new sources of revenue. A few years should see the supply largely augmented, and, let us hope, the price largely decreased. Should the present level become permanent, and cable makers increase the prices to the same tune as the golf ball makers, who have already drawn the ire of certain indignant golfing correspondents, then it is not improbable that a cheaper article will supersede the old and valued vulcanized rubber cable altogether.

RUBBER WONDERS IN SINGAPORE.

THE transformation of Singapore through the agency of rubber is thus referred to by the United States consul general, in *Daily Consular and Trade Reports* of August 5:

"The wide reaches of waste land on the island of Singapore, which have been of no use since the culture of gambier, coffee and pepper was given up, are now the scenes of great activity. Rubber plants are being set out over these deserted wastes, and seem to do well. In the suburbs of Singapore city a considerable area of swamp land has been drained and converted into a nursery for Pará rubber plants, which are sold at a good profit to the planters on the island. In Malacca there were formerly many square miles of land covered with lalang, the hiding place of the tiger and other big game, which have been transformed into fine rubber plantations, and now Malacca, which has for years been largely neglected, is in a flourishing condition. A short time since there was no banking institution in the town of Malacca; today three banks are doing a good business and the place is rapidly becoming an important center.

"The eastern rubber boom has caused the flotation of 75 companies with 35,000,000 shares, capitalized at nearly \$80,000,000 gold. A large portion of the shares has been used as part payment of purchase price. In many cases only a portion of the total capital has been issued. The public has taken great financial interest in these flotations. The amount actually expended represents only a modest part of the total value set upon these properties by the speculating public."

INCREASED PRODUCTION OF BALATA.

THE production of balata continues to increase at a steady rate, though the annual growth of the trade may not be very large. The figures for the three past calendar years have been as follows—with the exception that the 1909 output is missing:

	1907.	1908.	1909.
Venezuela pounds	3,203,141	3,512,485	3,573,753
British Guiana	991,280	1,124,530	1,033,895
Dutch Guiana	765,120	999,227
Total	4,959,541	5,636,242	

The total for 1902 was only 2,891,091 pounds.

A British consular report from Venezuela says: "The high price prevailing for this article has stimulated its production. The system of felling the trees to collect the gum still continues, and the productive forests are growing more and more distant from the base. The extent of country bearing the balata trees appears to be, however, so great that as soon as one district is exhausted another is discovered, further away of course. Considering the total absence of modern transportation facilities and that the products has to be carried from the forests over bad roads and tracks on donkey back or in wagons for distances exceeding 200 and 300 miles, it is surprising that the production is so well maintained."

A book for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

Pará, Manáos and the Amazon.

By The Editor of "The India Rubber World."

SIXTH LETTER.

The Opening of a New Avenue to the Rich Rubber Fields of Bolivia.—The Madeira-Mamoré Railway, Now Under Construction.—Camp Life With the Engineers.—Interest in Rubber Planting on the Amazon.—Legislation in Pará for the Encouragement of Planting.

I HAVE already mentioned the great number of workers, engineers and others, whom we met going and coming from the headquarters of the Madeira-Mamoré railway, but it was not until I got to Manáos that I really appreciated what a great undertaking it was, and how energetically it was handled.

One of the partners in the contracting firm that was putting the road through resided there, and I got to know him well. His official headquarters were at Manáos. But Iticoatiara, at the mouth of the Madeira river, was the place where supplies were stored, and many of the men housed going and coming from the railroad camps.

The Madeira, it will be remembered, is the Amazon's greatest tributary. It comes from Bolivia and furnishes about the only outlet for that landlocked republic. From where it enters the Amazon to San Antonio, nearly 500 miles away, it is navigable by ocean steamers. Then come 250 miles of rapids, in which there are nineteen cataracts. When the water is high the big rubber scows, or *batelões*, are able to get through by floating part of the way and making portages around the falls, but shooting the rapids. These portages are furnished with narrow gauge tracks. The *batelões* are unloaded, pulled upon a small truck, and dragged up over the hills, and then eased down on

the other side. The return trip involves 25 portages, and three trips a year are all that is possible.

The enormous effort required in moving these heavy boats can hardly be imagined. Every season at low water new roadways must be made by clearing the great boulders out of the river bed, and then laying a corduroy road of green poles, over which the keel of the *batelões* can slip. Where it is possible they use tackle block to help in the pulling, but sometimes everything must be done by main strength.

There is a loss of 10 to 15 per cent. of the rubber sent down by the upsetting of the scows. Not only that but many men are drowned. The *batelões*, by the way, are flat bottomed scows 30 feet long and 8 feet wide, and carry about 10 tons of rubber. They are manned by 16 paddlers, or *bateleiros*, and usually make the journey down in 20 days, while it takes 60 to return.

LIFE IN A RAILROAD CAMP.

The headquarters of the construction camp was not at San Antonio, but at Porto Velho, where were assembled from 4,000 to 5,000 men. Of these 300 to 400 were Americans. Here were built substantial quarters for the engineers, bunk houses for the men, an up-to-date thoroughly equipped hospital, an ice plant, and large storehouses. The company had also drilled wells for water, and was making every effort to keep the men well. In spite of that there were sometimes nearly 300 men in the hospital, and seven to ten doctors and eight male nurses were



HAULING A BATELAO AROUND THE FALLS OF GIRAO, MADEIRA RIVER.



A "BALSA" TRANSPORTING RUBBER.



"BATELÃO" APPROACHING RAPIDS ON THE MADEIRA.

constantly employed. The experiment of having female nurses was tried, but they were married and carried away so constantly that it was voted a failure.

The camp was under military discipline, and liquor was taboo. In spite of this the native laborers smuggled in more or less "cachaca." The most troublesome diseases were beriberi, blackwater fever, and dysentery. Quinine, of course, was the remedy generally used and most potent. It was bought by the ton, and three laboratory men were kept busy from morning until night making it up into pills.

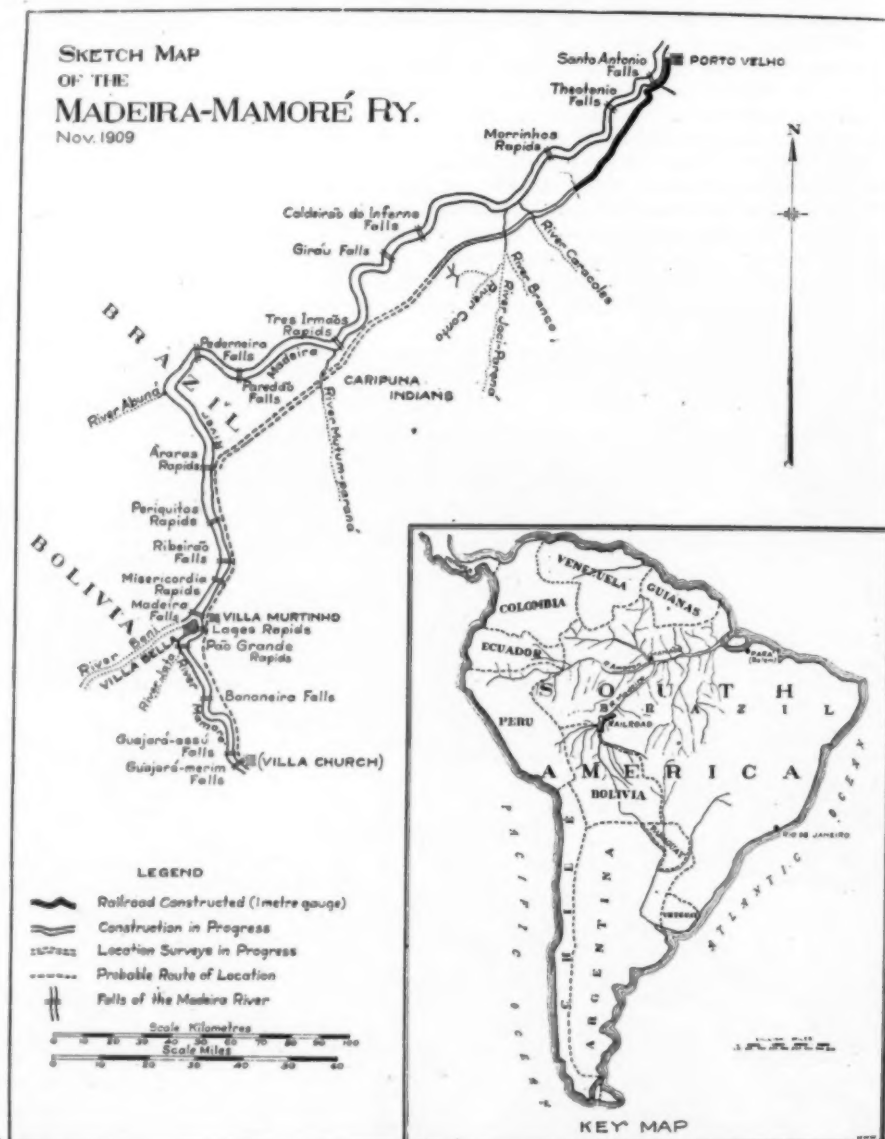
The town was noted as publishing the only English paper on the Amazon, called *The Porto Velho Times*. The first issue appeared on typewritten sheets. Then the company sent in a font of type and a printing press, and the paper appeared with more or less regularity. It was a remarkable looking sheet, typographically. There were no "w's" in the font, and two "v's" placed close together were the alternative.

The paper was full of camp news and genuine fun, and everybody subscribed. Under the general announcements of the paper's scope and policy appeared the subscription price, which was—

Six months, nothing.

Three months, half price.

The railroad workers were only in this camp at stated seasons. Some of them were far ahead with the preliminary party of engineers, who were



THE NEW OUTLET FOR BOLIVIAN RUBBER.

deciding upon the location, or they might be nearer the camp on construction. The company paid the men on the 10th of every month, and five men were in the employ of the pay office to prepare the \$175,000 that the paymaster carried in person to the various camps.

All of the men were obliged to sign a contract not to meddle with the Carapuna women, or to sell firearms to the men. If this contract was violated they were discharged without pay. The result of this wise policy was that the Indians were very friendly, and furnished the camps with many turtles and lots of fish. The company shipped in beef on its own steamers from Manáos, and furnished such delicacies as Boston baked beans and rice *ad libitum*.

SOME LABOR TROUBLES.

The day laborers were a mixed lot gathered from all parts of the world. An unfortunate experiment on the part of a German contractor took place while I was in Manáos. He brought in 600 laborers from Germany, mostly Polish Jews, and agreed to pay them 60 cents per cubic yard for digging dirt. He was to get \$1 a yard for it, and pocket the difference. The workmen in a few days after they were located discovered that other gangs were getting \$1. They promptly struck and walked 80 kilometers back to camp. The camp manager, when he heard

as a class, and those who are suited to the life really enjoy it.

I met two whom I had previously known in Panama. They were on their way to the states for their vacation. One was in perfect health; the other had chills and fever at regular intervals, but was filling up on quinine, and had no thought but to return when his vacation was over.

They had many interesting and unusual stories to tell of happenings up in the wilderness. One of them told of the possessor of an honored English name who was compelled to drop it and take another. It came about this way. Whenever a companion called him by his surname, it was greeted with shrieks of laughter on the part of the natives. Not only that, but if he met a native on the trail, the latter would speak his name and then go into convulsions of merriment. When he learned that his patronymic was a native word which meant the concrete and ultimate result of a strong cathartic pill, he promptly called himself "Smith."

EARLY RAILROAD WORK ON THE MADEIRA.

The story of the earlier efforts to build railroads around the falls of the Madeira is wonderfully interesting and singularly romantic. The first real attempt was made some forty years ago, under a concession to the Bolivian Steam Navigation Co., the con-



A LEVEL STRETCH OF THE MADEIRA.



ONE OF THE FALLS OF THE MADEIRA.

the whole story, promised to cancel the contract and give them \$1 per yard. This they refused. He then offered to put them at work on buildings and other jobs. This they also refused. He then offered them free transportation back to Manáos, but again met stubborn refusal. He was finally forced to disarm them and drive them from camp. They then built rafts and started to float down to Manáos. Many of them died, and the residue were picked up by a river steamer and taken to Manáos and placed in charge of the German consul. As I was leaving, the German government was getting busy with the idea of seeking redress.

Perhaps the greatest curse in this upper country was insects. There were flies innumerable, together with moyaquils (called "bachoburna" there), chiggers, ticks, and mosquitos by the million.

The railroad company established wireless stations at Manáos and Porto Velho, which worked perfectly from the start. Later they planned to have another station at Villa Bella, at the farther end of the road. It is quite possible, once these are installed, that the can communicate with Bolivian wireless stations, which would give Manáos another means of sending messages to the outside world.

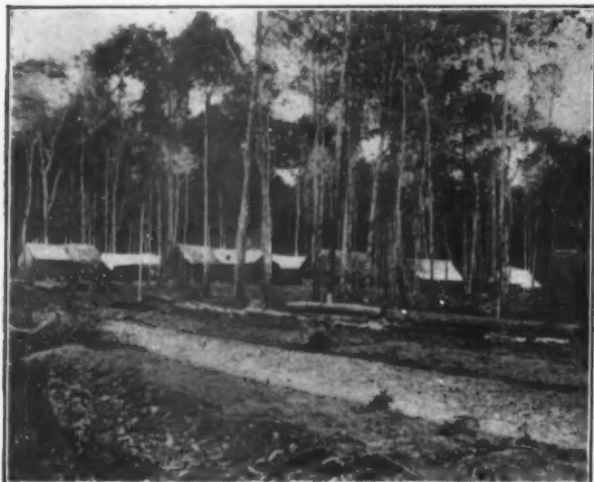
The engineers go with the company under contract for a period of two years, with a three months' vacation, which they usually spend in a trip to the United States. They are very well paid,

tractors being the Public Works Construction Co., principally backed by English capital, and the actual work being done by P. & T. Collins, an American concern. The whole scheme originated in the enterprise of Colonel George Earl Church, a noted American civil engineer, who proved to both the Bolivian and Brazilian governments the necessity for such a road.

The Collins company made a survey, sent in much equipment and had laid about five miles of track, when the English bondholders got frightened, put an injunction on the funds of the company, and after much litigation got the money and the Collins company got nothing. The American loss was something like \$500,000. The Brazilian government later put through a new survey, but were not ready to finance the proposition at that time. Then came the Acre dispute and the cession of that rich rubber territory to Brazil, with the agreement that the railroad should be built at once.

According to common gossip in Brazil, the American engineering company who are putting it through agree to have it completed in three years' time. The Brazilian government pays all of the bills and the construction company gets 10 per cent. of the money expended, for its trouble. The road is narrow gage and many of the bridges now of timber construction will be replaced later with solid masonry.

Except in the towns very few traces of the Collins enterprise remain. The roadbed, rails and all had absolutely disappeared,



CONSTRUCTION CAMP, MADEIRA-MAMORE RAILWAY.



CONSTRUCTION WORK IN PROGRESS.



ROCK CUT ON RAILWAY LINE.



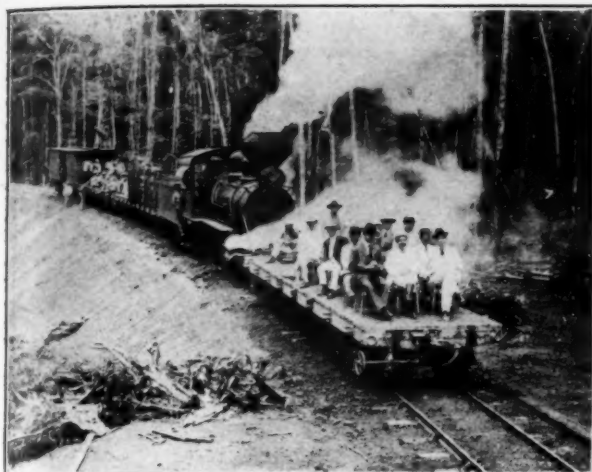
FILL AT STATION 54.



NATIVE WARD IN CAMP HOSPITAL.



MAKING QUININE CAPSULES IN HOSPITAL.



CONSTRUCTION TRAIN ON THE MADEIRA-MAMORÉ.

and only impenetrable jungle was to be found where once ran the pioneer Madeira-Mamoré railroad.

The Madeira river, above the falls, is fed by several great rivers that drain an immense territory which is rich in rubber. There is, for example, the Guaporé, that drains both Bolivia and Brazil, rising far up in Matto Grosso; the Mamoré, the Beni, and the Madre de Dios—all great rivers, together with hundreds of lesser. This upper country has many thousands of miles of navigable streams at the time of high water, and once the railroad is finished, hides, cinchona, and a great variety of other products, as well as rubber, will find their way out through the Amazon.

AS TO THE SUAREZ INTERESTS.

The completion of the Madeira-Mamoré railway will in a measure affect the Suarez interests. Suarez y Hermanos, or Suarez & Brothers, known in London as the largest shippers of Bolivian rubber, in which they have made millions, have their headquarters just above the first of the Madeira falls.

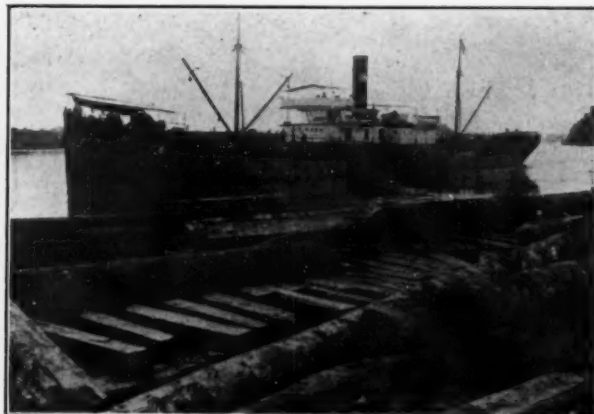
The creator of this company, Nicholas Suarez, although worth millions, is a quiet, thrifty, hard-headed man of business. Of Bolivian birth and speaking only Spanish, he has for years practically controlled the carrying trade up and down the Madeira, as well as the gathering and collecting of the rubber along many of the great waterways above the falls.

If Suarez's life history could be written it would prove a very stirring tale. He began as a trader for rubber, dealing with savages whom none other had dared to even communicate with. Soon he and his brothers began to acquire great concessions. They pushed further and further into the interior, trading with the Indians, practically ruling them, and avenging any insult or lack of faith most terribly. One of his brothers was murdered by savages, and it is said that Nicholas Suarez practically exterminated the tribe to whom his murderers belonged.

He employs probably about 4,000 men, and is said to be worth from \$35,000,000 to \$40,000,000. A born organizer, he is still a simple, saving man of the people. But his nephews, liberally educated, living in Europe, are genuine men of the world.

The Suarez rubber, by the way, is not put up in cases, but is shipped in bulk to London.

Bolivian rubber, although at present such a factor, dates back only a few years. It was first discovered in 1878, but it did not appear on the market until 1893, when the grade known as "Mollendo" began to be shipped from the Pacific port of that name. This, to be sure, was not wholly Bolivian, but was partly a Peruvian product. The tree that produces it is undoubtedly a



STEAMER AT PORTO VELHO.

[The starting point of the Madeira-Mamoré railway.]

Hevea and is said by some to be the *Hevea lutea*. It grows on the uplands to an altitude of 3,000 feet, and on sloping well drained ground, and not in swamps or where it would be subject to inundations.

There are two collecting periods—from April to July and from October to March. The trees are tapped for about three months each year, and then are allowed to rest. The rubber when carried up the rivers, by muleback over the mountains, by boat across Lake Titicaca, and by railroad to Mollendo, is said to cost, exclusive of the export duties charged in Bolivia, about 40 cents a pound.

Bolivian rubber is gathered somewhat differently from that down river. There is used a *mango*—literally a handle to which is attached a flat disk 6 to 8 inches in diameter. This is used as the ordinary paddle is. Where much smoking is to be done a disk to which two handles are attached at opposite sides is substituted. These handles are supported by cross pieces which allow the disk to revolve rapidly over the *buyon*, or smoking pot. Indeed, to facilitate matters, there are sometimes three or four of these pots in a row.

Two methods of branding rubber are in use. One which is known as "fire" branding consists in heating a die and pressing it into the outside surface of the rubber. The other way is to have the name of the *seringal* cut on the surface of the paddle; then when the *pelle* is cut open the rubber is found to have taken an exact replica of the brand.

In the upper rivers, where the water is very shallow, the rub-



EMBARCING CATTLE AT CARSCARAY.

[An important food source for the rubber regions.]



STEAMER "SERINGUEIRO" ON THE ACRE.



CARAPUNA INDIANS AND NATIVE BOAT.

ber takes its first journey on *balsas*, or small rafts. If they are to pass over rough water, the logs of which they are made are hollowed out. These recesses are filled with rubber and whole is floored over, so even if the crew is upset or lost the rubber survives.

Two or more *balsas* joined together form a *callapo*, which is used when the river broadens to admit larger craft. Still further down the rivers the *batelão*—commonly pronounced "batalone," is used as freight carrier.

PRIMITIVE WATERPROOFING WITH RUBBER.

It would be strange in a rubber country if there were not some rubber manufacture. And there is much. Nearly all of the Indian tribes make rubber *ponchos*, kit bags, and some very curious toys.

In making a rubber bag, they first make a bag of fabric, sometimes of prettily flowered calico, which they stretch over a frame until the surfaces are smooth and taut. Then they take caucho milk, never using *Hevea*, and stir into it powdered sulphur, the proportion being a tablespoonful of sulphur to each liter of latex. After stirring the liquid thoroughly they apply it to the cloth with a feather and give it a sure cure. If sulphur is not obtainable they use gunpowder.



RELIC OF THE COLLINS EXPEDITION.

When the sulphur compound is spread over flowered calico the colors show through and the bags are extremely pretty.

The gunpowder mixture, of course, is black and not transparent. These bags will outlast a dozen made of vulcanized rubber and are eagerly purchased by engineers and prospectors.

A great many other useful articles are made, such as cigar cases, tobacco pouches, and ammunition bags, and even rubber shoes. Of course the latter are not made for export. Occasionally a native makes a clay last, puts thirty or forty coats of latex over it, with additional coats for the sole and heel. Then a couple of days later he draws ornamental designs with a knife or a piece of wire, allows the shoes to stand a week to dry out and then they are finished.



RUBBER ARTICLES MADE BY BOLIVIAN NATIVES.

INTEREST IN RUBBER PLANTING.

The planting idea seemed to have taken a strong hold upon the residents of both Pará and Manaus. I talked long with one large operator in the Acre who assured me that his house had already planted more than 100,000 trees. There were those who were urging the governor of Amazonas to grant subsidies and concessions of all sorts, but while he was most favorable to the planting idea, he did not see his way clear to favor exactly the plans put before him.

The following is a translation of the planting laws for the state of Pará, which are very liberal and well worth a careful reading:

FOR AGRICULTURISTS IN THE STATE OF PARÁ.

The Legislative Congress has decreed, and I sanction, the following Law.

ARTICLE I.—To agriculturists of this state who may, by themselves, or by societies formed for the purpose, satisfy the exactions of the present enactment, the following premiums, to be paid by the finance department of the state of Pará, will be awarded:

First, of 500 milreis, for each lot of 500 rubber trees conveniently planted.

Second, of 250 milreis, for each lot of 500 cacao trees conveniently planted.

ART. II.—In order to establish the right of receiving the premiums instituted by the present Law, planters or associations must follow the instructions given by the agricultural department of the state, to which must be communicated the intention to plant.

ART. III.—The premiums shall be paid in installments within the following periods:

a. Whenever rubber trees have been planted, the premiums shall be divided in four equal installments, which will be paid as follows: The first, in the end of the second year after the trees have been planted; the second, in the end of the third year after the trees have been planted; the third, in the end of the fourth year; and the fourth, in the end of the sixth year.

b. [Here follow similar provisions for the payment of premiums to planters of cacao.]

ART. IV.—Previous to the payment of any premium, the number of plants and their respective ages must be verified by an employé of the agricultural department appointed by the government, and a record will be written of all that is verified, all of which must be signed by the said employé, by the planter and two witnesses, in preference, two planting neighbors.

One.—If, on verifying one lot of plants, at the request of any planter, it is seen that newer trees have been planted, other than the ones to which the premium is applicable, notes will be taken to entitle the planter to the additional premium, in the proper period due.

ART. V.—If the planting has not been done in strict accordance with the instructions of the agricultural department, or does not appear to be thriving, in the opinion of the employé of the agricultural department, or any other person, the government may refuse the payment of the premium.

One.—In cases of disputes arising on such points as this, the planter has the right to require of the government the appointment of a committee composed of three professional agriculturists, who will decide as to the rights of the planter.

ART. VI.—If on counting trees for the payment of any portion of premiums due by the government it is ascertained that, receiving the first installment, the number of trees has diminished, the next installment will not be paid until the exact number of trees are replaced.

ART. VII.—To farmers or societies who will apprise the government of their intention to plant, the following favors may be conceded:

a. Gratuitous distribution of 500 kilograms of chemical manures, during four consecutive years;

b. Seeds, plants and complete instructions on the following of agricultural pursuits;

c. Gratuitous teaching for every branch of agriculture;

d. Free freights on all the steamship lines and railways subsidized by the government for all machinery materials, plants, seeds, manures, fertilizers and animals for draft or stud purposes.

ART. VIII.—The proprietors of farms organized under the protection of this Law shall be entitled to the following additional favors:

a. A reduction of 50 per cent. on the export duty on rubber produced the first 10 years, dating from first exportation, and 30 per cent. reduction on the following 10 years; 30 per cent. reduction on the railway freights and all steamship lines subsidized by the government.

b. For cacao: [Similar provisions].

ART. IX.—To enable these reductions to be obtained, all packages must bear a trade mark, registered at the Board of Trade at the city of Pará.

ART. X.—To farmers or associations who will petition for lands for the purpose of planting in accordance with this Law, parcels of not over 100 hectares (= 247 acres) will be sold for one-half of the current established rates for public lands.

One.—The sale of these lands will be made provisionally and the titles thereof shall not be issued until it is proved that it has been planted to an extent that will enable the owner to receive, in premiums, a sum exceeding the cost of the lands.

Sec. 2.—If, after the period of three years, it is proved that the condition of the previous section has not been complied with, the government may declare the sale of the said lands null and void, and take possession thereof, together with any improvements made, without any right of indemnification on the part of the government, or of the return of any moiety paid on account of the purchase.

ART. XI.—The government will decree, in the form of by laws, all provisions that may be deemed expedient for the proper operation of this Law, and will open the necessary credits for the payment of premiums herein instituted.

ART. XII.—All enactments to the contrary are hereby revoked.

The Secretary for Public Works, Public Lands and Ways will see to its execution.

Palace of the Government of the
State of Pará, November 6, 1909.
[Signed] JOAO ANTONIO LUIZ COELHO,
INNOCENCIO H. DE LIMA.

FOR PLANTING COMPANIES, NATIVE OR FOREIGN.

The Legislative Congress has decreed, and I sanction, the following Law:

ARTICLE I.—The Governor is hereby authorized to contract with one or more companies, native, or foreign, the planting and exploitation of the rubber tree (*Hevea Brasiliensis*), under the concession of the following favors:

a. The concession of state lands, up to 20,000 hectares (= 50,000 acres, more or less), duly handing them over, after proper demarcation, for the necessary planting operations of the company;

b. A reduction of 50 per cent. to be made in the export duties of cultivated rubber produced, in the first ten years dating from the day of the first exportation, and 30 per cent. for another period of ten years.

c. A reduction of 30 per cent. in the freights of the railways and on steamers which may be subsidised by the state, during twenty years, on all rubber produced by the company;

d. Free transport on the Brazilian railway, and on steamship lines subsidised by the state, for all machinery and materials needed by the company to put up their buildings and appurtenances: for all immigrants to be located on the company's plantations, as well as for all seeds, plants, animals, manures, tools and implements;

e. Advances to be made by the government treasury, as a guarantee of interest at the rate of 5 per cent. per annum on all the shares and bonds issued by the company, to the extent of one-half thereof.

One.—This guarantee of interest shall be limited only to the issue of a capital of \$400,000, if the capital of the company shall be double that sum, or more.

ART. II.—In exchange for these favors the company must undertake to do the following:

a. To plant a minimum of 20,000 rubber trees yearly.

b. Observe the instructions of the agricultural department of the state in the mode of planting.

c. Maintain an elementary rural school with accommodations to house at least 20 minors, orphans, and a practical demonstration ground for teaching the mechanical appliance of tools and implements to agricultural pursuits, and also an experimental ground for trial of plants and the effects of manuring on same.

d. Cultivate rice, corn, and beans, and prepare the same mechanically.

e. Furnish the department of agriculture of the state annually complete statistics of all the planting movement and its results, and the products of rubber and other plants obtained yearly.

f. Use in the packages to be shipped containing products of the plantation, a registered mark, to be deposited at the Board of Trade of the state of Pará.

g. Permit the government the right to superintend all the works accomplished, in the manner it may best think fit.

ART. III.—The guarantee of interest conceded by this Law shall cease as soon as the company begins to earn 6 per cent. on its invested capital; and as soon as the said earnings on the capital invested by the company shall exceed 7 per cent. per annum the company shall begin to indemnify the government, at the rate of 5 per cent. on the total sums advanced by the government.

ART. IV.—As soon as the company shall begin to earn profits, the guarantee of interest, as provided by this Law, shall be only complementary, and be limited to that sum which will enable the company to declare a dividend of 6 per cent. on all its issued capital.

ART. V.—The concession of state lands shall be made for a period of 99 years, gratuitously, the right of property reverting then unto the state, together with all improvements made thereon.

ART. VI.—So long as the government guarantee prevails, the company shall not be at liberty to augment its capital, without the full consent of the said government.

ART. VII.—The rules and regulations and by laws of the company shall be subject to the approval of the government.

ART. VIII.—So long as the government guarantee prevails, the said government shall have the right to appoint one of the directors of the company.

ART. IX.—As a guarantee of the good faith in the execution of its contract, the government shall have the right to demand that the company shall deposit up to the sum 10 per cent. of its debenture stock.

a. The dividends paid on these debentures shall be credited to the company at the state treasury.

b. After the government is indemnified by the company for all advances made the debentures may be withdrawn from the treasury, if they should have been deposited.

ART. X.—Any concessions made under this Law shall be considered null and void, for all intents and purposes, and all lands acquired and improvements made shall revert to the sole possession of the government, without any right to indemnity of any sort, if, after two years from the date of the signing of its contract, the company shall have failed to plant a minimum of 40,000 trees, which must be established, and growing in good condition, and also having complied with the exactions of Article II of the present Law, save and except, cases of *force majeure*, in which case the government reserves the right to judge.

ART. XI.—The government of the state shall use every effort to obtain from the federal government in favor of the company, exemption of all import duties on machinery and agricultural implements it may need to import for its uses in the cultivation of the soil.

ART. XII.—In the contract to be signed with the *concessionaire*, the government shall secure the interests of the state, by inserting the necessary clauses, regulating how the lands conceded shall be populated, and determining the periods on which the guarantee of interest shall be paid.

One.—In any case, the 5 per cent. corresponding to the first year shall only be paid after the government ascertains that steps have been practically made to initial the works for which the company has been organized.

ART. XIII.—The government shall open the necessary credits to defray all the expenses originated by this Law.

ART. XIV.—All decrees and laws in any way contrary to this, are hereby revoked.

The Secretary of Public Works, Lands and Public Ways will see to the execution of this enactment.

[Signed] JOAO ANTONIO LUIZ COELHO,
INNOCENCIO H. DE LIMA.



FLOATING ISLAND ON THE AMAZON.

From a practical standpoint the trouble about any rubber planting concession in Brazil is that governors, like our own presidents, normally last only four years. An unfriendly governor may not be able to cancel a concession, but he can easily interpret the various articles so that it would be valueless. Not that there is any present indication of such change or such attitude, but the time might come when such action would be

My own hope was that the governments of both Pará and



NATIVE COATING CANVAS BAG WITH RUBBER MILK.

Amazonas would remove the tax on plantation grown rubber entirely for a series of years. That they refused to do, as there were decided difficulties in the way. For example, wild rubber prepared as is plantation rubber would be sure to appear, and if a company owned both wild and planted rubber the temptation would be to get most of both kinds upon the market without an export duty.

Nor is the clause placing the export duty of planted rubber at one-half that of wild rubber an attractive proposition. It should have been a definite sum like 5 or 10 cents a pound; or a definite percentage on the sales value of the rubber, say of 5 or 10 per cent. Another thing, the idea of the planter running an industrial school or orphan asylum in connection with a business venture will not appeal to any capitalist. It is more than likely that these laws will be amended and simplified. Indeed, their very presence is a decided advance, and a strong symptom of the desire of the government to encourage planting on a large scale.

I was fortunate enough to know the acting director of the Pará Agricultural Experiment Station and get his ideas on planting. He was a young American, was an instructor in botany in an American university, and later at the head of an important section in the United States department of agriculture. More than any other he has studied the problem of rubber planting in the state of Pará. I quizzed him very searchingly, and the following is his statement, almost *verbatim*, and it is worth serious consideration:

Although in itself the greatest rubber shipping port in the world, the immediate vicinity of the city of Pará seems never, except by a few better informed and more far sighted than others, to have been considered seriously as a factor in the production of plantation rubber. Nevertheless, this district possesses advantages and opportunities afforded by none other, and those seeking outlets for a profitable investment would do well to investigate it further.

The city's proximity to the sea and its natural advantages as a port are so well known and its advantage in this respect over upriver points, where higher freights would be unavoidable, are so apparent that they may be passed over. Then Pará possesses a railroad of 250 kilometers [=153 miles] in length, which



THE URUCURY PALM.

[Its nuts are used for smoking rubber.]



CUTTING RUBBER FROM PADDLES. BOLIVIA.



FIRE BRANDING OF RUBBER, BOLIVIA.

affords access, ignoring the still much too prevalent belief that *Hevea* delights in wet and swampy locations, to a tract of well drained and healthful territory, immune to the caprices of annual floods, which is capable of producing a grade of rubber comparable to any now coming from the Amazon valley. This territory was personally inspected by the writer with the express purpose of investigating its suitability for rubber culture.

This section, speaking of the more accessible portion south of the river, forms part of the great forest system of the lower Amazon and extends in an unbroken stretch, practically without variation, eastward to the sea and southward to the mountains. The formation is a typical tropical rain forest; the large trees, among which are some veritable giants, stand comparatively far apart and represent almost innumerable species; the undergrowth is somewhat more compact, the small trees are straight and slender, while the whole is intertwined with *lianas* and made practically impenetrable without the help of a *machete* or axe. Extremely hard and durable woods are plentiful, some defying both the axe and the agencies of decay, but the trees of any one given species are so isolated and difficult to find and reach that remunerative lumbering is out of the question. The small trees and *lianas*, or *cipos*, serve many useful purposes in the construction of houses, fences, and tools.

In this forest the rubber tree is no exception to the general rule, as it is scattered and found in isolated locations like the other native species. The large size of the specimens found,

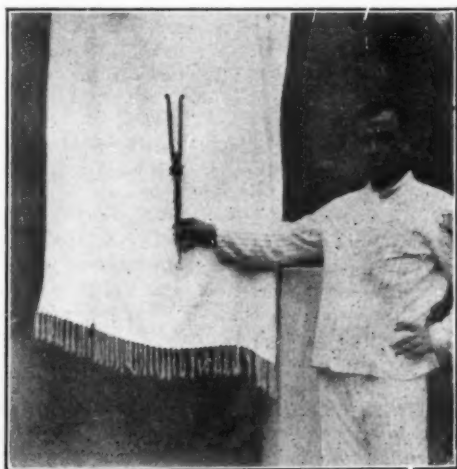
however, even when in competition with other and often times more vigorous denizens of the forest, testifies to its adaptability to its surroundings. In some localities it is, of course, more plentiful than in others, as those who remember recent newspaper accounts of discoveries made near the borders of Maranhão will know. There are also in the city and along the Bragança railroad, Pará rubber trees of a foot or more in diameter, which were planted and are now producing rubber of the finest grade. These are large, strong and productive, even in exhausted soil or when much crowded and neglected.

Labor does not present any unusual difficulties near Pará, nor are the forests difficult to remove. Raw labor is available in almost unlimited quantities near the city. It is easy also to import men from southern Europe and the Madeiras, a class which rapidly accustoms itself to the climate, which is not at all unhealthful, especially in the higher districts away from the vicinity of the rivers.

The native custom of clearing the land of forests is to fell the small trees and ring or kill by fire such of the large trees as have not yet been removed for their valuable timber, and then to set fire to the whole when somewhat dry. This practice destroys the most valuable elements of the soil for the time being, making it useless for more than one or possibly two crops of corn or cassava, but the supply of potash made available by the combustion of the timber serves as a stimulant for plant growth, which can be improved upon later by mulching or by a system of green manuring.

In what is known as *capoeira* land—i. e., abandoned clearings which have been covered by second growth—the cost of clearing is, of course, much less; the humus has been restored to the soil, oftentimes in greater quantities than ever before, and a clearing can be made simply by felling the young growth of trees, which can be left to decay. This does away almost entirely with the extra expense of burning and cleaning up after felling; besides it preserves the humus in the soil and adds an additional amount with a mulch by its own decay.

[TO BE CONTINUED.]



INDIAN SLING SHOT (WITH RUBBER).

An Edinburgh correspondent states: An interesting phase is provided to the present rubber boom in interviews with a number of Scottish money lenders. The men in an extensive way in this class of business all stated they had advanced large sums during recent weeks, for periods of three and four months, to borrowers who secured the money for the express purpose of buying new rubber shares in the expectation of selling at an enhanced price and repaying on the special settlement. The interest charged by these money lenders varies from 40 to 100 per cent.—*The Financial News* (London).

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

ALTHOUGH I have always referred to this topic in a tone of extreme skepticism as regards its commercial importance, it has not been from any desire to distort the facts or to subserve any particular interests. I refer to the matter again more particularly in connection with German developments.

SYNTHETIC RUBBER.

With regard to the production of synthetic rubber by Professor Tilden some years ago, a little somewhat acrimonious discussion has been going on between the friends of Professor Tilden and those of Professor Dr. Harries, of Kiel. The latter have it that the product obtained by Tilden was not exactly identical with rubber, though almost so. Dr. Harries, I am assured by a German chemist cognizant of his work, has gone a step farther, so to speak, and has produced a 100 per cent. pure rubber of high quality from isoprene synthesized by a new method. Patents have been taken out in Germany and are now being applied for in Great Britain. I understand that Dr. Harries' rights have been made over to the great chemical manufacturing firm Farbenfabriken vormals Friedr. Bayer & Co., of Elberfeld—generally known by the abbreviated name of Bayer.

This means, of course, that the process will have the highest chemical skill, and ample capital resources behind it. It is understood that a factory is now in course of erection near Kiel to manufacture the new rubber, and that the only hitch likely to occur in the enterprises is the cost of production. This has already been considerably reduced, I am told, but still even if the new rubber can be produced at a cost to enable it to compete with Pará rubber today, what will be the case two or three years hence, when the inevitable fall in price takes place? However, there appears to be plenty of optimism about those associated with the Harries process, and it is to be expected that the chairmen of plantation companies will be interrogated on the subject by nervous shareholders. Of course what I have said above as to the difference between the Tilden and Harries rubbers comes from a German interested source. I merely pass the statement on and it may be that its truth is not accepted by Professor Tilden and his friends.

THE developments which have been made in the last few years with regard to the solvents used in rubber works seem to merit

NAPHTHA RECOVERY.

a brief reference. The tendency has been to do without refrigerating plant such as has been supplied in the past by Liddleys, of Liverpool. In one of the modern arrangements in use on the continent the hydrocarbon vapors are condensed by immediate contact with cold water. I understand that the recovery is satisfactory and the cost of plant quite small compared with refrigerating machinery. Another system is the absorption of the vapors in a heavy and their subsequent separation by distillation. This, I may say, is a process in regular operation for the recovery of benzol from coke oven gases. I understand that a plant of this sort has recently been put up in a balata belting works. Another method of considerable interest is that used in connection with Vincent's patent vertical spreader and naphtha condenser. In this cold water alone is used without any refrigerating machinery and 90 per cent. of the naphtha used is stated to be recovered. This vertical spreader is a French patent and quite novel. I understand that it costs from £800 to £900 complete with condenser, and that it is in operation at the North British Rubber Co.'s, the Helsby works of the British Insulated and Helsby Cables, and also at Pirelli's, in Milan.

It will be interesting to see how these various new processes progress. Of course their advantage depends a good deal on the price of the solvent, and I believe it was mainly owing to the

low price of naphtha at the time that the recovery plant, patented some years ago by Frankenburg and Weber, was not put into operation. Having regard to the bulk of solvent used in the rubber industry, the amount which has been recovered in the past has really been quite trifling. In other industries where volatile solvents are used, for instance in oil extraction from seeds, dry cleaning of fabrics, and the manufacture of cordite with acetone, the recovery of the various solvents used has always been one of the main objects in view. In the rubber works the conditions of spreading are such as to complicate the recovery of solvents, and the business has been generally looked upon as more trouble than it is worth. Petroleum spirit, however, is now being more widely used than of old, and as this has gone up in price it is clear that where close competition exists those firms who can recover their solvent with profit have an advantage over those who let it all go to waste.

IN the Edinburgh courts judgment was recently given in favor of Messrs Hepburn, Gale & Rose, Limited, in applying for an injunction against the British Balata Belting Cos., Limited, to restrain them from infringing their trade mark of a bull dog. The plaintiffs are now in a large way of business as balata belting manufacturers, having works at Bermondsey and Mitcham, both in the London area.

BALATA BELTING SUIT.

AMONG the Americans attending the annual meeting of the Society of Chemical Industry at Glasgow was Mr. H. van der Linde, formerly of the Gutta-Percha and Rubber Manufacturing Co., of Toronto, Limited, but now prominently

GUAYULE RUBBER.

connected with the Intercontinental Rubber Co., of New York. I was pleased to have a visit from him, and to renew the acquaintance made some years ago. Mr. Van der Linde is a great believer in guayule rubber, and does not agree with those who predict the extinction of the industry in a few years' time owing to the extinction of the shrub. The present output of his company, he says, is about 1,250,000 pounds per month, and I gather that the whole output is sold for months ahead. Though not engaged in selling guayule, Mr. Van der Linde has taken the opportunity of conversing with some British rubber manufacturers on its properties, and has found that some prejudice exists against it. I remember that when it was first introduced to England the amount of resin was objected to. Later on the bulk of the resin was taken out before sale, but now I understand this procedure has been found too costly, and that it is sold with the resin, which appears to be more part and parcel of the guayule rubber than is the case with, say, African rubbers of high resinous content.

Guayule rubber is much cheaper than Pará and gives good results for goloshes, not cracking at all if properly manufactured. I understand, also, that in connection with the manufacture of railway bore it stands the somewhat severe test of the Master Car Builders' Association in a perfectly satisfactory manner. Some remarks on guayule, which recently appeared in the *Boston News Bureau*, have been reproduced in an English financial journal. One of the statements is to the effect that guayule rubber cannot compete with Pará grades, its price being only one-third of that of fine Pará. At the statutory meeting of the Guayule Rubber Co., Limited, one of the London boom flotations, the chairman, Mr. A. G. Augier, complained of the criticisms that had been made about the company and read a report from a Mr. William Perkins testifying that guayule really was rubber and not something else. I should hardly have thought it mattered what the public thought; the trade knows that it is true rubber,

though it is certainly a fact that the British manufacturer is not as cognizant of it as is the American and German, who so far have taken the bulk of the output. The experts of this company seem to have no doubt whatever of the continuity of supply of the shrub.

I READ with interest the article dealing with Gare's waste rubber process in THE INDIA RUBBER WORLD (July 1—page 358)—

RE-FORMED RUBBER.

a process which has already been referred to more than once in this correspondence. The article, of course, dealt specially with Gare's process, and it was not incumbent on the writer to go beyond this. As, however, it might be imagined that in the matter of reforming rubber Gare's patent confers a monopoly, it may be of interest to say that there are other patents in the field which claim to effect the same end in a somewhat different manner. The first patent is the French one granted to Karavodigue, and it was this patentee who opposed the granting of Gare's patent, though without avail. Then there is the patent of Hutchinson and Milne, of Glasgow, already detailed in these notes. The next on my list is the patent of Hyatt and Penn (No. 13,599—1908), the amended specification of which was dated April 26, 1909. In this patent, which was ineffectually opposed by Gare—Mr. Grist giving evidence before the court—the novel application of a vacuum to remove the air from the mold is protected. The latest patent I have to mention is that of Immisch, which was granted, I believe, at the end of last year. In this case the air is expelled from the mold by means of a small quantity of a volatile oil.

Besides the £150,000 company referred to in the article, which I presume is the Simplex Rubber Co., owning the Gare patents, there is also the Premier Reforming Co., Limited, of £150,000 capital, working the Immisch patent. There seems to have been some delay in raking in the large profits adumbrated in the prospectus, but according to the remarks made by Mr. Rawson at the recent meeting of the Endurite Manufacturing Co., which promoted the Prenner company working Immisch's patent, the latter company is now going ahead. It will be seen, then, that there is by no means a monopoly in the reforming business, though I do not say that all the patents are of equal merit. Gare heats his crumb rubber to 400° F., to effect solidification, while in Hyatt and Penn's vacuum process perfect solidification is effected at 280° F. In this process, while any oxidation as well as revulcanization is prevented owing to the complete absence of air, the reforming of the goods from crumb rubber at the vulcanizing temperature produces a rubber of the greatest uniformity throughout its mass and with its content of free sulphur reduced to a minimum. I understand that the reformed rubber made by this process has been very favorably reported upon by rubber manufacturers and excellent prospects would seem to await any company formed to work the patent.

SOME exception has been taken by this company to the observations I made in the June issue of THE INDIA RUBBER WORLD.

CRUDE RUBBER WASHING CO., LIMITED.

In the first place, they say they are not interested either directly or indirectly in the London Venture Corporation, or the Madagascar Rubber Co. My reference to the business arrangements existing between the latter company and the Crude Rubber Washing Co. was solely with regard to the Guignet machine, and I hasten to correct any impression that other relations exist. With regard to the London Venture Corporation, I did not suggest that any business relations existed. I said that the Venture Corporation promoted the Crude Rubber Washing Co.; this is not disputed by the latter. I quite understand that the two concerns are widely different in character, the one being engaged in promotion and finance work, while the other is a purely technical concern formed for the specific object of supplying washed rubber to the trade. I don't know that I inferred that the company were "concerned in the share market or the promotion of companies," but I gladly make their disclaim-

ance known. In my further remarks I allowed myself to suggest that competition might arise from the use of another patented washing machine. If I enlarged on this topic I might involve myself in further correspondence, and I don't feel inclined to do more than give publicity to the statement made by the Crude Washing Co., that they are using their own machine, which is different from any other, because they have proved it to be the most satisfactory. They are quite disposed to use any other machine if it can be shown to be superior. To conclude I may say that I was commending on a published prospectus quite impartially and the reference to another machine was quite justifiable under the circumstances.

IN the interesting account of the Liverpool Rubber Co.'s changes published in THE INDIA RUBBER WORLD for July 1

A CORRECTION.

there is a note with reference to the re-arrangement of capital in the new company. This is obviously incorrect, but as the necessary correction may be beyond the power of many readers I may say that the paragraph should read: "The terms under which the new company gains control of the old are that for each ordinary £5 share is given two preferred shares of £1, debenture stock of £1, and about £1 in cash—or a total of nearly £4."

A COMPANY capitalized at £80,000 has recently been formed to take over the business and works of the New Motor and General Rubber Cos., Limited. Its title is the rather peculiar one of Almagam, Limited, this being the name given to

NEW COMPANY FLOTATION.

a product or a process connected with the re-treading of tires. This is put forward as the main asset of the company. Some of the papers hail Almagam as a substitute for rubber, but as far as I understand the prospectus it consists of rubber treated in a special manner which is stated to confer on it novel and important properties. The process is said to have proved very satisfactory during the few weeks it has been in operation, and the profits are certified by chartered accountants. A financial paper, however, says that a much longer period ought to have elapsed in order to thoroughly favor the invention before going to the public. The works are situated at Harpenden, near London, and some of the directors of the new concern have been identified with them for many years.

GUAYULE AS A MONEY TREE.

THE story is told in the New Orleans Times-Democrat of one Henry Clausner, who, in search of fortune, landed in Mexico with only a few hundred dollars. Happening to be in Saltillo at the time of the starting of the first guayule rubber factory there, he felt that he foresaw a great future in this industry, and determined to invest his savings in it. He started to look for a tract of good guayule land, and near Mazatlán, in the state of Zatecas, he bought 5,000 acres of land at 25 cents (Mexican) per acre, or about \$625 in United States currency. Mr. Clausner then found work on a neighboring ranch as foreman, and there he has been working since, refusing all sorts of offers for the guayule shrub upon his land. Recently he accepted an offer of \$200 (Mexican) per ton for the shrub, based upon an estimate of one-and-a-half tons an acre, the proceeds working out at \$1,500,000 (Mexican), or one-half this amount in United States currency. And he has the land left. This fortunate young man is quoted by the New Orleans newspaper as saying: "I resigned my job on the ranch, and am off to Europe to spend the summer."

INTEREST in rubber planting continues to be developed in South India. The formation is reported of the Malankara Rubber and Produce Co., in the State of Travancore, at the southern extremity of the peninsula, in which district several rubber plantations have been formed already.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED JULY 5, 1910.

- N**O. 963,048. Tire fastener. R. W. Jordan, assignor to Jordan Demountable Rim Co., Boston.
 963,136. Hose nozzle. H. Gibbs, assignor to W. D. Allen Manufacturing Co., all of Chicago.
 963,172. Dental plate. J. Petry, Pittsburgh, Pa.
 963,304. Vehicle wheel. [With pneumatic tire.] W. W. MacFarren, assignor to W. H. Donner, both of Pittsburgh, Pa.
 963,308. Rubber heel protector. G. G. Mirlach, Beaver Dam, Wis.
 963,320. Tire. [Clinder type; with solid interior body sections.] I. F. Peck, Cranston, R. I.
 963,365. Holder for rubber type. H. S. Folger, Chicago.
 963,482. Vaginal syringe. I. L. Stevens, St. Louis.
 963,667. Pneumatic tire protector. G. Vergote, Marshall, Minn.

ISSUED JULY 12, 1910.

- 963,806. Manufacture of india-rubber for elastic tires of vehicle wheels. E. Poizat, Glos, France, assignor to L. Alexandre, Condom, France.
 963,882. Armored tire. W. H. Eynon, Cleveland, Ohio.
 964,004. Air brake hose. C. T. Driggs, Erie, Pa.
 964,049. Pneumatic tire. M. T. J. Ochs, Allentown, Pa.
 964,131. Shield for tires. R. J. Stone, Detroit, Mich.
 964,363. Automobile tire protector. J. G. Anthony, Detroit, Mich.
 964,446. Reinforcement for pneumatic tires. A. L. Murray, Grand Rapids, Mich., assignor of one-half to Shawmut Tire Co.
 964,462. Vehicle wheel. [With pneumatic tire.] J. M. Benham and G. W. Slater, Oakland, Cal.

Design.

- 40,763. Ornamental design for rubber hose. W. F. Bowers, San Francisco.

Trade Marks.

- 49,820. Continental Rubber Co. of New York. The word *Hexagon*, surrounded by a hexagonal design. For rubber that has been treated for the removal of extraneous matters.

ISSUED JULY 19, 1910.

- 964,551. Hoof pad. B. J. Porter, New Brighton, Pa.
 964,578. Hose coupling. J. H. Stephens, Vernon, Tex.
 964,579. Hose coupling. *Same*.
 964,610. Anti skidding device for vehicle wheels. M. Clark, Chicago.
 964,727. Resilient tire. I. O. Wilson, El Toro, Cal.
 964,769. Syringe. J. H. L. Eager, New York.
 964,783. Armor for pneumatic tires. C. E. Huxley, Chicago.
 964,888. Foot ball, punch ball, and similar playing ball. J. Turner and A. Buxton, Manchester, England, assignors to The Rubber Patents, Ltd., Cowley, England.
 964,903. Syringe. [Combined with water bottle.] J. L. Fisher, Providence, R. I.
 964,977. Tire protector. J. L. La Driere, Albuquerque, N. Mex.
 965,098. Process for separating caoutchouc from resinous products. G. F. Flannant, Paris, France.
 965,127. Overshoe. L. B. Trafton, Limestone, Me.

Trade Marks.

- 48,302. C. H. Oakley, Trenton, New Jersey. A monogram formed of the letters X and S, in outline. For rubber soles and heels.
 48,303. C. H. Oakley, Trenton, New Jersey. The same design as No. 48,302. For rubber quoits and croquet balls.
 50,435. The B. F. Goodrich Co., Akron, Ohio. The word *Economy*. For belting.

ISSUED JULY 26, 1910.

- 965,281. Pneumatic tire. J. Corwin, Chicago.
 965,331. Anti skid tire. H. G. Raflovich, Jersey City, N. J., assignor to Rubber B. B. Co., Bloomfield, N. J.
 965,443. Emergency tire. C. M. Culp, South Bend, Ind.
 965,530. Automobile wheel. [With rim for pneumatic tire.] C. Ramussen, assignor of one-half to P. W. Steinbeck, both of New Haven, Conn.
 965,594. Non slipping rubber tread horseshoe. T. S. Moffett, G. F. Baker, and A. Robeson, Spokane, Wash.; Moffett assignor to Baker and Robeson.
 965,620. Portable vulcanizing apparatus. M. Bouchet, Paris, France.
 965,621. Non skidding device. H. P. Brown, Mount Vernon, N. Y., assignor to General Device Manufacturing Co., New York city.
 965,642. Armor for pneumatic tires. A. H. Macbeth, Fort Wayne, Ind.
 965,695. Tire protector. W. T. Morgan, assignor to W. J. Wickes and A. D. Eddy, all of Saginaw, Mich.
 965,698. Protector for automobile tires. J. S. Ehrich, Lynchburg, Va.
 965,715. Demountable rim for automobile. C. Johnson, Buffalo, N. Y.
 965,765. Sealing composition. [Consists in part of a gum closely resembling rubber.] J. C. Taliaferro, Baltimore, Md.

Trade Marks.

- 46,620. C. H. Oakley, Trenton, N. J. A monogram formed of the letters X and S, in outline. For valves and packing.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1909.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 6, 1910.]
 66,003 (1909). Rubber tread for roller skates vulcanized directly to the body of the roller. G. H. Fennell and J. H. Ganson, London.
 6,034 (1909). Rubber mouthpiece for removing wrinkles from the skin. J. E. Kollinger, Munich-Solln, Germany.
 6,101 (1909). Spring wheel with rubber tread. J. Spyker, Amsterdam, Holland.
 6,121 (1909). Single or multiple solid rubber tire. T. Wood, Withington, Lancs.
 6,140 (1909). C. H. Crawley and T. D. Hiden, Lenton, Notts.
 6,175 (1909). Pneumatic tire valve. J. Hall, Birmingham.
 6,227 (1909). Pneumatic tire with mud guard as an integral part. F. F. Mott, Birmingham.
 6,300 (1909). Hydraulic packing, composed of metal, rubber, and fabric. G. H. Cook, London.
 6,305 (1909). Flying toy. H. Spranger, Gelsenkirchen, Germany.
 6,512 (1909). Flying toy. W. Waegemann, Kemton, Germany.
 [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 13, 1910.]
 6,598 (1909). Flying toy. C. E. Richardson, Sheffield.
 6,707 (1909). Nasal douche. R. J. Baker, Cardiff.
 6,730 (1909). Spring wheel with two or more tires side by side. G. Debladis, Paris, France.
 6,744 (1909). Solid tire with special means of attachment. A. Mans, Dieghem-Brussels, Belgium.
 *6,844 (1909). Pneumatic tire tread. T. J. Mell, Youngstown, Ohio.
 *6,851 (1909). Detachable rim of the split type for pneumatic tires. C. G. Hawley and E. K. Baker, Chicago, Illinois.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 20, 1910.]

- 7,283 (1909). Tire with sectional air tube. C. Jeffs, Newport.
 7,302 (1909). Combination of cellulose with caoutchouc, by adding a basic solution such as viscoso to latex. Société Française de la Viscose, Paris, France.
 7,309 (1909). Tire tread in which fabric on edge is embedded in rubber. G. C. Taylor, Helsby.
 7,418 (1909). Spring wheel with solid tire. C. A. Chertemps, Soisy-sur-Montmorency, France.
 7,433 (1909). Centrifugal machine for separating rubber from latex. H. S. Smith, Caledonia, Tobago.
 [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 27, 1910.]
 7,871 (1909). Heel pad. J. H. Pemberton, Manchester.
 7,878 (1909). Spherical spring for golf ball cores, and other purposes. J. Childs, Bolton, and B. S. Attwood, Manchester.
 7,889 (1909). Heel pad. W. Ackerman, Berlin, Germany.
 7,908 (1909). Rim for pneumatic tire. W. D. Venning, London.
 7,959 (1909). Cupping apparatus for treating the skin. J. Muretz, Berlin.
 7,963 (1909). Solid rubber tire. L. Baraduc-Müller, Paris, France.
 8,062 (1909). Process for making articles from india-rubber. H. Dogny and two others, Paris France.
 8,106 (1909). Fabric without weft, made by gumming threads together. P. Chevalier, Moulins-sur-Allier, France.
 *8,313 (1909). Puncture closing device for tires. C. L. Baldwin, New York city.
 8,327 (1909). Heel protector. A. Fearnside, and C. Fearnside, Bradford.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 410,942 (Nov. 9, 1909). W. C. State. Machine for manufacturing open tire treads.
 411,157 (Dec. 30). Gustave Boinet & Cie. Rubber check buffer for carriage springs.
 411,455 (Jan. 11, 1910). A. Lefaix. Emergency wheel, adaptable to wheels of automobiles and other vehicles.
 411,460 (Jan. 11). P. Vandervelde. Method of attaching pneumatic tires.
 411,540 (Jan. 13). Hirtz, Michel Levy & Bloch. Tire protector.
 411,711 (Jan. 19). D. Moriarity. Elastic tire.
 411,721 (Jan. 20). W. Loebinger. Tire valve.
 411,760 (Jan. 20). K. E. Smith, Jr., and The Lynton Wheel and Tyre Syndicate, Ltd. Improvement in vehicle wheels.
 411,802 (Jan. 22). R. Latour. Envelope for pneumatic tire.
 411,860 (Jan. 19). L. E. Finelle. Improved rim and tire.
 411,869 (Dec. 29, 1909). Estelle. Improved automobile wheel.
 411,977 (Jan. 27). M. A. Kennedy. Tire protector.
 411,991 (Jan. 26). The Continental Co. Process of manufacture of pneumatic tires.
 412,065 (Jan. 31). E. J. Duff. Elastic tire.
 411,011 (Jan. 25). Carteret. Horseshoe pad.
 411,032 (Jan. 25). J. Smith. Caoutchouc compound.
 411,063 (Jan. 27). The Rubber Tanned Leather Co., Ltd. Treatment of leather to render it waterproof.

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The Inventor of the Pneumatic Tire.*

THE dispute arose about a statue. Who invented the pneumatic tire? To whom should Edinburgh give honor in bronze or marble? To a Mr. R. W. Thomson, who patented an air filled tire in 1845, or to John Dunlop, who invented the pneumatic tire in 1888? The dispute carries the imagination back over one of the most astonishing episodes in our industrial history. It begins with a mystery of invention. It culminates in financial operations on a scale unexampled in our day, and the development of innumerable industries connected with the use of rubber.

It was, indeed, in 1845 that Thomson patented the idea of affixing a "belt" filled with compressed air to the rim of a carriage wheel, and although his invention never came into practical use, he showed great knowledge of the good effects which would follow from the use of the pneumatic tire. Thomson, however, was ahead of his time, and his tire found no favor.

Forty-three years later John Dunlop, without any knowledge of the Thomson invention, patented a pneumatic tire. More than once I have heard from Mr. Dunlop himself the simple tale of how he came to invent this device. The "safety" bicycle had then come into vogue, but its wheels were shod with solid rubber tires. Mr. Dunlop's little son possessed a tricycle, and as the Dunlops then lived in Belfast, and the Irish roads were of very bad surface, this veterinary surgeon applied his mind to contrive some means for minimizing the harsh jolting to which his boy was subjected when he rode his tricycle.

A rubber tube filled with compressed air was evolved, and it afforded such comfort to the rider that Mr. Dunlop brought the idea before adult cyclists, and some enthusiasm was aroused among them. But Mr. Dunlop would have hardly been more successful in 1888 than Thomson in 1845 had not another man appeared on the scene.

Mr. Harvey du Cros was at that time a prominent figure in Irish sporting circles, and his sons were famous for their prowess in cycle racing. With true business instinct Mr. du Cros saw the immense possibilities of the pneumatic tire for cycles, and he threw himself heart and soul into the work of making this crude invention practicable. His early efforts were greeted with derision. Cyclists and cycle manufacturers scoffed at the clumsy "bolster" tire offered to them, and almost without exception experts declared against it.

Then Mr. du Cros brought a band of Irish cyclists, including his sons and R. J. McCreedy, to England, and they gained sweeping victories with the pneumatic tire on the racing track. It was evident now that the new invention would eventually triumph, but a long and desperate fight against conservatism and prejudice had still to be waged, and it is reasonable to assume that but for the enterprise and ability of Mr. Harvey du Cros Mr. Dunlop's invention might have lain dormant for many years. Had this been the case the whole progress of modern locomotion from motoring to airmanship would have been checked, for we can trace the direct influence of the air-filled tire in all the astonishing developments of the last twenty-two years. So from the bad state of Irish roads, from the solicitude of a fond parent to make smooth progress for his son's cycle over rough roads, Thomson's idea was recreated, and this time the right man was at hand to develop the idea.

From the pneumatic tired bicycle there evolved naturally the idea of fitting air tires to motorcars, and in this direction France led the way. The crude mechanism of the early motors was saved from the rough vibration of the roads, and the automobile improved with amazing swiftness as soon as these tires were employed. With the progress of the motor car came the

perfecting of the petrol engine and its application to manifold purposes. Last of all, it made the airship and the aeroplane possible, and in each of these vessels rubber fabric is extensively employed.

Follow the evolution from small to great. Today cycles are numbered in millions, the total in the United Kingdom being over 3,000,000. There are close on 180,000 motor vehicles in the United Kingdom, and the world's total must soon approximate to half a million. All over the globe the trail of the air filled tire has been laid by millions and millions of wheels, and the road is becoming once more the main artery of our social system. In the air, too, we are tracing new routes by the aid of the petrol engine. Airships are being built by every great power, and of aeroplanes France alone has already nearly two hundred, most of them fitted with pneumatic tired wheels. With all this has come the creation of many important trades and the encouragement of innumerable allied industries, perhaps the most remarkable industrial development being that in connection with the production of raw rubber.

And this colossal factor in our industrial life has come into existence because of the discomfort to a child cycling along the rough roads of Ireland. Whether of Dunlop or of Thomson, Edinburgh's statue will not be without significance as a symbol in our industrial history.

* * *

It has been decided finally to recognize Dr. Dunlop as the one entitled to be considered the inventor of the pneumatic tire, and he is to be honored by the erection of a bronze statue in Edinburgh.

HOW RUBBER TREES ARE SCATTERED.

THE *Ceylon Observer* regards as a "most original and extraordinary advertisement" one offering for sale rubber forest properties in South America. The editor is moved to comment particularly on the estimate of 25 *Hevea* trees per acre, evidently with the idea that so small a number cannot be of consequence. But more than half the rubber produced today is derived from forest trees located more sparsely than 25 to the acre. By the way, the *Times of Ceylon* two years ago published this communication from an expert observer:

"SIR: Your reporter misunderstood me as to the number of rubber trees per acre I believe to be roughly the average in the Amazon region. What I intended to say was that 6 or 7 trees per acre is the maximum I have ever seen myself on an *estrada* of 150 trees, not that 6 or 7 trees per acre is usual. In fact, I very much doubt if there is a single square mile of forest on the Amazon with 1,500 trees on it [or 5 trees to two acres.] I quite agree with Mr. W. W. Bailey that one or two trees is nearer the average. Ninety million pounds of rubber come from probably about 60,000,000 trees scattered over at least 1,000,000 square miles of land—640,000,000 acres—in the Amazon region annually.

R. W. WICKHAM.

"Holmwood, Agrapatna, April 17, 1908."

REGARDING rubber fabrics for aeroplanes, Mr. Robert A. Warren, whose exhibition of a glider at the outing of the Rubber Club of America was mentioned in the last INDIA RUBBER WORLD, writes that while he has been using other materials, in his opinion rubberized fabric is the best aerial cloth. As this is very smooth it offers little resistance to the wind. Its cost, however—about \$1.50 per yard—tends somewhat to limit its use.

*From the London Daily Mail.

The Obituary Record.

JOHN B. CARRUTHERS.

It is with great regret that the death is recorded here of Mr. John Bennett Carruthers, F. R. S. E., F. L. S., assistant director of agriculture of Trinidad. Mr. Carruthers returned from a visit to the island of Tobago suffering from an attack of fever, which was followed by pneumonia, the end coming on July 17.

The subject of this sketch was the younger son of Dr. William Carruthers, F. R. S., some time keeper of botany at the British Museum. He was educated at Dulwich College, in England, from which he passed to the Royal School of Mines, and later to Griefswold University, in Germany. At the latter institution he developed the interest in botany that was to shape his successful career.

Leaving the university, Mr. Carruthers became assistant to his father, who then held the post of consulting botanist to the Royal Agricultural Society, and distinguished himself by his work in testing seeds and the study of diseases of cultivated plants. Subsequently he filled many positions of importance in the line of work which he had laid out for himself and made numerous contributions of value to botanical literature. In time

Trinidad as assistant director of agriculture. His heart was in the Malay States and he hated the thought of change, but, like a good soldier, he obeyed. Had he wished to leave the government service and take any one of a score of remunerative positions with Malaysian planting companies, he could in a short time have retired with a fortune. His profession, however, and his loyalty to the service prevented this.

In Trinidad he attacked problems there with intense enthusiasm and with absolutely no thought of sparing himself. His desire was to bring about some method of extracting the maximum amount of latex from the *Castilloa* tree without injury. He hoped, as long as there were large areas of *Castilloa* planted, to be able to make that tree nearly as great a profit producer as the *Hevea*. In the last chat that the writer had with Mr. Carruthers, only a few months ago in Port of Spain, Mr. Carruthers said:

"I do not want this for my own glory, as that is the very last thing I am looking for. But I do want to see the *Castilloa* planters win out on a large scale, and I believe that with the proper method of collection they can do it."



HENRY O. CANFIELD.



JOHN B. CARRUTHERS.



FRANK C. HOWLETT.

he found himself in Ceylon, in the government service, and later in the Federated Malay States. His last work was done in the British West Indies.

Mr. Carruthers was in his forty-second year, having been born in January, 1869. He married Frances Helen, daughter of the late Mr. A. B. Inglis, of Calcutta and Edzell, Forfarshire, Scotland.

Mr. Carruthers was in many respects a very unusual man. His ambition was wholly in the line of his profession, which was that of mycologist, or plant and tree doctor. What he did in discovering the origin of certain cacao diseases and stamping them out is a matter of record among tropical planters the world over. When canker developed in the Para rubber plantations in Ceylon, Mr. Carruthers was one of the first to devise means for checking it and finally stamping it out. His whole thought after he became director of agriculture and government botanist for the Federated Malay States was for the furtherance of scientific planting. He was particularly interested in rubber planting, and did much for the great plantations that have since proved so profitable.

A little over a year ago the home government sent him to

That wish to be of value to the rubber planter and to be an honor to his profession was his one ambition. In his death the British government has lost a most capable servant, while rubber planters the world over have lost one of their truest friends.

HENRY O. CANFIELD.

HENRY O. CANFIELD, who died at Bridgeport, Connecticut, on July 25, was born in Naugatuck, in that state, November 9, 1847, being a son of Jared Huntington Canfield and Mary Andrews. At the age of 13 he accompanied his parents to Europe, where he remained for several years, his education being completed by private tutors in France and Germany. Returning to America, he found employment with A. T. Stewart & Co., dry goods merchants in New York, going later with The Diamond Match Co., at Detroit, Michigan, and then to a railroad position at Pekin, Illinois. He remained in the transportation business for several years, rising to the position of chairman of the Illinois Railroad Freight Association.

The father of H. O. Canfield [see sketch in THE INDIA RUBBER WORLD, May 15, 1892—page 241] was a friend of Charles Good-year, with whom he did much important work in rubber at

Naugatuck and whom he represented later in Europe, finally establishing the business at Bridgeport now operated under the name Canfield Rubber Co. In 1885 the subject of this sketch assumed active management of this corporation as its secretary. In 1889 he withdrew to establish himself at Bridgeport in the manufacture of a line of mechanical rubber goods, which business was incorporated in 1904 as The H. O. Canfield Co., Mr. Canfield filling the office of president until his death.

In addition to being a successful business man, Mr. Canfield had numerous interests in life. He became a member of many branches of the Masonic order, in which he took several of the highest degrees. He was an attendant at the Episcopal church, and his charities, though unostentatious, are known to have been many. Mr. Canfield, on April 17, 1875, married Emmagene C. Freshour, of West Greece, New York, who survives. There are two sons—A. H. Canfield, vice president, and H. B. Canfield, secretary, of The H. O. Canfield Co. When Mr. Canfield retired from the Canfield Rubber Co. he sold his interest to his brother-in-law, the late Ratcliffe Hicks.

Mr. Canfield was always a striking, interesting figure. He was large, manly, optimistic, and unalterably genial. He numbered his friends by hundreds, and loved dearly to see and entertain them.

FRANK C. HOWLETT.

FRANK C. HOWLETT, of Syracuse, New York, one of the most successful and best known rubber goods merchants in the country, died on July 29 at Watkins Glen, where he had gone for his health, which for some time had not been robust. Mr. Howlett was born 53 years ago, at Cambridge, Massachusetts, and educated in the Boston schools. He was employed at first by Clapp, Evans & Co., a firm succeeded by the American Rubber Co., which latter was merged into the United States Rubber Co.

While quite a young man Mr. Howlett went to Syracuse with H. B. Hall, son of H. A. Hall, then a prominent member of the New England rubber trade. Mr. Hall opened a rubber goods store in Syracuse; he took a partner, O. W. Clary, under the style of Clary & Hall, and afterwards sold out to Clary. In 1881 Mr. Howlett went into business for himself at Syracuse as F. C. Howlett & Co. The next year a branch house was organized in Rochester, under the name Howlett Brothers. In 1886 a third store was opened at Buffalo.

Through these three houses Mr. Howlett controlled a goodly share of the jobbing trade in rubber goods in western New York. They were handlers of the products of United States Rubber Co., and about four years ago the three businesses were incorporated, each with capital contributed by the United States Rubber Co.—Syracuse Rubber Co., the Rochester Rubber Co., and Iroquois Rubber Co., each with Mr. Howlett as president and treasurer. The combined business of the three houses was estimated locally at something like \$1,500,000 per year. In 1895 Mr. Howlett bought out the business of Mr. Clary already mentioned in this sketch.

Mr. Howlett is survived by a widow, who was Miss Ella Phelps; also by a brother, Eugene, at Cambridge.

Frank Howlett had a generous, whole souled nature that made life richer for those who knew him. He was distinctly a good citizen, as well as a good business man, but he declined to accept political honor. He was a member of the Masonic order and of several country clubs, and an attendant at the Presbyterian church. He was exceptionally gifted as a tenor singer.

DR. S. AXELROD.

THE rubber industry, particularly on its scientific side, has suffered a severe loss in the too early death of Dr. S. Axelrod, one of the more modern group of German rubber chemists. Born in Odessa, Russia, he went at an early age to Berlin to complete his studies, after which he entered the rubber laboratory of the late Dr. Robert Henriques, whom he served as an assistant for

some years. In 1897 he became chemist for the Allgemeine Electricitäts Gesellschaft's cable plant at Oberspre, in which position he remained until his death, and most of his research work on rubber was carried on during this period. Dr. Axelrod's investigations were conducted along practical as well as scientific lines, and rubber chemists in general are familiar with his improved methods for the analysis of rubber, together with his researches into the general problems of vulcanization, mastication, and the like. Along practical lines he was active in investigations into the valuation and working of crude rubber, and in improvements in the manufacture of rubber-covered wire. Dr. Axelrod died on July 28.

PASSING OF A GERMAN RUBBER PIONEER.

THE death will be widely regretted in the trade of Herr Robert Friedrich Metzeler, of Munich, the founder of the india-rubber industry in Bavaria, who passed away at his home during the night between July 15-16.

Born in 1833, in Memmingen, Mr. Metzeler was compelled at an early age to enter the battle of life. After having tried various lines of business in his native and other countries, he reached Munich in 1860, with the intention of opening in that city a rubber goods store. However, the men who were at that time burgomaster and councilmen of Munich, harbored the opinion that a man would not be able to make a living from such business (the rubber trade being then a complete novelty in that city), and they refused to grant him a license. Nothing daunted, however, Mr. Metzeler repeated his applications during the next three years, until he finally succeeded, in 1863, in obtaining permission to start in business.

The growth of his trade, exceeding his most sanguine expectations, induced Mr. Metzeler in 1873 to establish a rubber works, which was removed in 1888 to a new and much more extensive plant. In 1890, Mr. Metzeler became a candidate for the reichstag, but was unable to win out against the candidate of the Social Democratic party. In consideration of his eminent services to the home industry, the title of Royal Bavarian Kommerzienrat was conferred on him in 1891. In the year 1910—under date of May 7—the firm of Metzeler & Co., was converted into a joint stock company, and Mr. Metzeler tried from the management of the business. The new company began with a capitalization of 1,600,000 marks, which amount has been increased largely, to keep pace with the growth of its trade. The Metzeler family continue to be identified with the management in the person of Dr. Karl Metzeler, who may be said to have grown up in the business.

The *Gummi-Zeitung*, in an appreciative notice of the deceased, says: "In him we again lose one of those clear sighted men who, by their energy and practical experience, have created a new industry in their country. All who have had occasion to come in contact with this sterling German man of the old stamp, will cherish his memory."

A GOOD YEAR IN TENNIS.

THE tennis goods trade for the season just closed showed a very good increase over last year. It is stated from an authoritative source that if the weather had not been so cold and wet in May and June, 1910 doubtless would have been the banner year for the tennis trade in the United States. The succeeding two months, however, cleaned up stocks in the hands of jobbers and retailers, and the outlook for the next season is considered very good.

There will probably be a few changes for next year in the way of lasts and patterns, but the general styles will remain about the same. Prices and terms had not been settled in time to be reported in this issue, but it was expected that they would be ready for distribution to the trade by September 1, as usual.

THE GOLF BALL MANUFACTURE.*

BY ROBERT MILNE.

AMONG the games belonging to the whole range of sport, none has had such a distinct influence on the general public, as golf. It has had a most helpful influence in the furtherance of the public health. In England, the municipalities are trying to excel each other in providing for the working classes health giving recreations, whose great usefulness cannot be denied; and golf links are being laid out near all the large cities.

While golf has been played for centuries, the game recently has been greatly advanced and developed by the introduction of the Haskell type of ball. In olden times the balls consisted of solidly compressed leather shells, stuffed with feathers. Such balls were replaced with solid balls of gutta-percha, which were at first given an approximately spherical shape by means of peculiar hammer devices, but were made later in special molds. Still more recently the Haskell ball, consisting of a rubber cone and a gutta-percha shell, were placed upon the market and revolutionized the sport. For one thing, the game became more attractive to ladies.

There has been some very expensive litigation over golf ball patents, one result of which has been to open the industry to a much wider field than a few years ago. The manufacture of golf balls and the best methods of construction have meanwhile been generally and definitely systematized, but as the practical process of making these balls is very valuable, it is still being guarded with the greatest possible secrecy.

MANUFACTURE OF GOLF BALLS.

The center of the golf ball today consists of vulcanized, floating rubber waste, chiefly an entangled mass of torn rubber threads. In order to shape this mass and make it hard, it is wound with tightly stretched strips of rubber, measuring from 10 to 20 millimeters in width, until the ball measures 18 millimeters in diameter. The rubber strips used are similar to the insulating tape used for electric wires.

When this core has thus been prepared, it is given a covering of rubber threads. These threads are 1 millimeter thick and from 3 to 4 millimeters wide, and made of the highest grade rubber, not containing any sulphur in its free state. While winding the threads around the core, they are tightly stretched. This covering constitutes the most resistant part of the ball, and the rubber threads or strands of which it is composed must be very carefully wound. A number of different machines have been constructed for this purpose. One of these winding machines consists of an approximately spherical steel ball, operating on steel rollers of peculiar shape. This machine produces a very elastic core. The difficulties formerly encountered in manufacturing golf balls have been considerably lessened by the use of this simple machine.

After the core thus prepared has been carefully tested, it is provided with a covering of hardened gutta-percha or balata, composed of sections with special rims or flanges. These sections are laid over the core and are then joined together in pressure molds. The sections of the covering are made in cast iron molds, while the pressure molds are made of steel and equipped with the necessary trade marks and names, the impression of which appears on the finished golf balls. Great care is required for all of these operations, since the gutta-percha covering will otherwise soon come off. The pressure molds are heated in a common vulcanizing press and subsequently cooled, whereupon the balls are taken out and any gutta-percha that may adhere to the seams of the mold is removed. The method formerly used, of winding gutta-percha strips around the core, has consequently been abandoned.

A further important factor is the painting of the golf balls. The painting must be resistant as well as elastic, as it would

otherwise crack and scale off. The most practical method is to give the ball six coats, starting with a coat of boiled linseed oil, followed by several coats of paint, and finishing with two coats of high grade enamel.

After wrapping each finished golf ball separately in some ornamented fabric, they are packed in small, handsome boxes, containing one dozen each.

In England, the dealer's selling price for the balls ranges between 9 pence and 2 shillings 6 pence each, the selling price of the bulk of the highest grade golf balls being at the present time 2 shillings.

The average number of balls required each day during the golf season is estimated at from 450 to 500 gross, or 64,800 to 72,000 balls. The consumption is undoubtedly increasing, since golf is now being played in all parts of the world, and new golf clubs are being organized everywhere. Players are eager to test every new kind of golf ball placed upon the market, and if the new golf ball stands the test, its sale promises good profits for the dealer, providing he advertises the brand effectively.

GROWTH OF THE STOUGHTON COMPANY.

THE Stoughton Rubber Co. (Stoughton, Massachusetts) recently purchased land adjoining their plant, and at once plans were begun for an additional building which, it is understood, is to be of concrete, three stories high and 130 x 50 feet. The business of the Stoughton company, always successful, has been growing rapidly of late. The employees number over 400, and the new buildings will provide for a larger working force.

This business was begun in 1877 as the Mystic Rubber Co., with \$13,000 capital paid in. The name Stoughton Rubber Co. was adopted early in 1889, and its capital increased to \$100,000. Later in the year the figure was raised to \$200,000, and the name and good will taken over of the Hall Rubber Co. (Watertown, Massachusetts). The capitalization is now \$250,000.

At the foundation of the business one of the traveling salesmen was Ira Foss Burnham. Four years later he was made factory superintendent, and since that time he has been in charge of the business. In 1893 he was elected president and general manager.

The concern at Stoughton was among the very first to make rubber gossamer garments. When the demand for such goods declined, the company added rubber service clothing to their products; later a full line of mackintosh rubber goods, and, finally, a cravenette department was organized. The company are thus in a position to supply all kinds of waterproof clothing. A Stoughton newspaper presents a picture of 32 employees who have been on the payroll for an average of 19½ years.

RUBBER IN ARGENTINA.

AN official report from the American minister at Buenos Aires quotes the government botanist of Argentina to the effect that the Mexican guayule plant (*Parthenium argentatum*) has not been discovered in that country. The minister states, however, that there is an abundant growth of what he calls "guayule arbustivo," also known locally as "yarillas," which is rich in resin, believed to be of value for use in varnish making. This plant constitutes almost the only vegetation in the arid portion of the republic, but its commercial exploitation is not known to have been commenced.

The same report mentions the existence on the eastern slope of the cordilleras of a small tree of the *Euphorbiaceæ* which is said to contain good rubber, but no rubber has yet been exported from Argentina. For the previous state of knowledge on this subject see THE INDIA RUBBER WORLD, April 1, 1906 (page 219).

*From the Gummi-Zeitung.

The New Malaysian Rubber.

THE statutory meeting of the United Malaysian Rubber Co., Limited, required under the British corporation laws, was held in London on July 27, when it was announced that plans had been completed by acquiring the whole of the stock of the Malaysian Rubber Co., incorporated in New Jersey, in the United States. [See THE INDIA RUBBER WORLD, June 1, 1910—page 302.]

The company has been formed for working gutta-jelutong into a rubber of high grade. Up to July 17 the factory of the company at Goebilt, Sarawak, had turned out 325,213 pounds of prepared rubber and the last sales had realized 5s. [$=\$1.21 \frac{2}{3}$] per pound. It was believed that the operation would have been much larger, but for the destruction by fire in Singapore of a great quantity of chemicals.

Concessions have been obtained of exclusive rights for tapping jelutong in the Federated Malay States, over an area officially reported at 4,945,608 acres. In addition to the company's interests at Sarawak, shares are held in two Dutch companies, the Nederlandsch Indisch Boschproducten Maatschappij, and

the Karimon Rubber Maatschappij, carrying important rights in South Borneo and the Karimon islands. The erection of a factory in the Karimon islands, to cost more than £60,000, is contemplated.

Dr. Philip Schidrowitz, of London, an expert in the chemistry of rubber, having just returned from a two months' visit to Sarawak, made a most favorable report on the prospects of the company. Dr. Schidrowitz regarded the future supply of gutta-jelutong as safely assured, and he did not believe that the production was likely to become so large as to result in a decline of prices to a figure which would cease to make the work of the company extremely profitable.

Later information is that the factory at Goebilt during the first week in August shipped 35,500 pounds of rubber, and it was expected that by the date of this paper the plant would be turning out more than 10,000 pounds daily. The Karimon Islands plant, about 30 miles from Singapore, expected to be in operation by the end of January next, is planned for a minimum capacity of 30,000 pounds of rubber product daily.



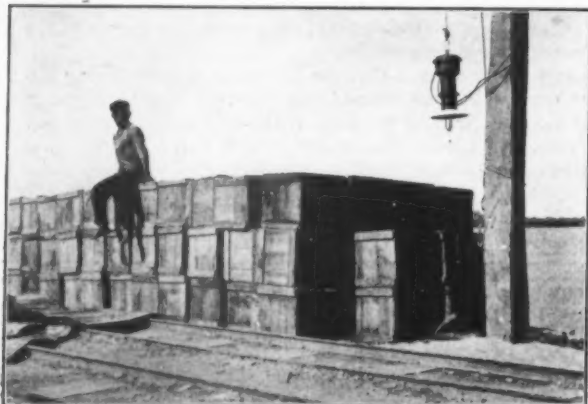
"GUTTA-JELUTONG" TREE IN JUNGLE.
[Showing Method of Tapping Now in Use.]



"GUTTA-JELUTONG" TREE IN JUNGLE.
[Dr. P. Schidrowitz and Native Tapper in Foreground.]

The new rubber is being billed in New York to American buyers as "Extract of Borneo," though it does not seem probable that this term will become permanent. When fine Para was quoted at \$2.90, the new Malaysian rubber sold in New York as high as \$1.30. It has since declined to 90 cents, and advanced again during the past month to \$1.10.

Speaking of the continuance of the trade in crude Pontianak, it may be mentioned that a single manufacturing concern imported at New York recently 6,000,000 pounds in a single month, and the company state that they have no fear of not being able to continue to obtain the crude gum as long as they may desire it. They are, however, buying some of the new raw rubber.



RUBBER READY FOR SHIPMENT AT GOEBILT.

The great extent of production and consumption of gutta-jelutong is indicated by the importation of this material into the United States alone. The figures which follow are compiled from official statements of receipts of Pontianak at New York for fiscal years ended June 30:

YEARS.	Pounds.	Values.
1910	52,392,444	\$2,419,223
1909	24,826,296	852,372
1908	22,803,303	1,039,776
1907	28,437,660	1,085,098
1906	21,390,116	733,074
1905	19,104,911	641,319
1904	14,887,416	430,231
1903	13,084,817	345,431
1902	16,850,821	501,418
1901	9,371,087	248,838

This large quantity, of course, comes in a crude form, as indicated by the fact that the import price for the last year averaged only 4.6 cents per pound. Various manufacturers in America have developed processes for deresinating jelutong, with presumably satisfactory results. It will be interesting, none the less, to see how far, if at all, the operations of the great new company in the Far East will influence the shipment of untreated gum to the United States.

GUTTA-JELUTONG IN EUROPE.

JELUTONG is brought upon the European markets by the Borneo-Sumatra Maatschappij, according to the American consul general at Hamburg, imports being made from Singapore. London is mentioned as the principal market for jelutong, but this must refer to the European trade alone. The principal consumption of gutta-jelutong is in the United States, to which country the importation is almost wholly from Singapore, the figure for a single year amounting to over 27,000,000 pounds. The consul reports: "The average price of jelutong, such as Bandjermassin, Pontianak, and Sarawak, during the last five

years, has been 45 to 50 pfennigs per kilogram [10.7 to 11.9 cents per 2.2 pounds]. The price is now 58 to 60 pfennigs [13.8 to 14.3 cents] per kilogram. Pontianak is the lowest grade, and is generally quoted a half cent below other kinds. At times the price has been as low as 9½ cents per kilogram."

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

THE following is an official statement of the value of exports of manufactures of india-rubber and gutta-percha from the United States for ten fiscal years, ending June 30:

YEARS.	Belting, Packing, and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
1909-10	\$1,960,825	\$1,084,739	\$5,115,331	\$9,060,895
1908-09	1,498,445	1,292,673	3,823,956	6,615,074
1907-08	1,347,775	1,614,290	3,743,040	6,705,105
1906-07	1,253,369	1,231,808	3,729,643	6,214,910
1905-06	1,221,159	1,505,082	2,966,144	5,692,385
1904-05	994,100	1,214,342	2,572,375	4,780,817
1903-04	879,476	1,086,364	2,409,750	4,435,590
1902-03	819,985	1,056,491	2,299,875	4,176,351
1901-02	634,146	1,046,315	1,781,941	3,462,402
1900-01	565,726	724,015	1,727,527	3,017,268

Exports of rubber boots and shoes (in pairs) have been as follows, by fiscal years ended June 30:

1902	2,594,708	1905	2,390,539	1908	3,080,253
1903	2,307,401	1906	2,693,670	1909	2,396,435
1904	2,310,808	1907	2,310,420	1910	3,791,084

Exports (in value) of reclaimed rubber and of waste rubber have been as follows:

YEARS.	Reclaimed.	Waste.
1909-10	\$535,795	\$578,944
1908-09	414,861	402,897
1907-08	418,738	449,727
1906-07	665,109	548,695
1905-06	511,843	339,507
1904-05	522,902	204,945

IMPORTS INTO THE UNITED STATES.

YEARS.	India-Rubber.	Gutta-Percha.	TOTAL.
1909-10	\$1,154,347	\$80,567	\$1,234,914
1908-09	1,391,770	71,819	1,463,589
1907-08	1,956,590	93,545	2,050,135
1906-07	2,262,783	191,064	2,453,847
1905-06	1,992,413	208,172	2,200,585
1904-05	1,389,064	117,735	1,506,799
1903-04	821,562	335,480	1,157,042
1902-03	665,972	225,198	891,170
1901-02	449,756	127,780	577,536
1900-01	478,663	163,337	642,000

GREAT BRITAIN AND IRELAND.

OFFICIAL statement of exports of manufactures of caoutchouc for the first six months of three years:—

	1908.	1909.	1910.
Boots and shoes.....	£79,477	£78,742	£86,988
All other	713,945	755,903	897,199

Total value	£793,422	£834,645	£984,187
In U. S. money.....	\$3,861,188	\$4,061,800	\$4,789,546

Value of "Apparel" waterproofed by any process—first six months of the year: In 1908, £148,482; in 1909, £125,466; and in 1910, £221,370.

Exports of rubber footwear amounted to 77,475 dozen pairs in 1908; 79,814 dozen pairs in 1909; and 83,106 dozen pairs in 1910.

THE abundance of rain during the present traveling season has had its effect on the rubber trade, as evidenced by the lively sale of raincoats. Although it is, of course, our sincere wish that the summer excursionists and those who seek health at the "spas" may enjoy fine, pleasant weather, there is, on the other hand, reason for satisfaction in the thought that the rubber trade is being benefited by the wetness of the season—*Gummi-Zeitung*.

New Rubber Goods in the Market.

A SCOTCH BOWLING SHOE.

THE Douglas patent bowling shoe is a recent addition to sporting footwear. It is vulcanized over specially shaped lasts which allow the two sides of the counter to come close together, thus forming a spring attachment, sufficiently strong to tightly grip the heel portion of the shoe. This grip is intensified by the lining of the heel seat with corrugated rubber, which is said to obviate slipping. There are no straps, laces, or buckles, the adherence of the shoe depending wholly on the spring attachment. Another desirable feature is a perfectly flat sole. [Waverly Rubber Co., Edinburgh, Scotland.]



DOUGLAS BOWLING SHOE.

the well known La Crosse "Red Fiber" sole, a vamp of black rubber, and an upper of heavy well oiled tan leather running to the knee. This top has a good sized snow and water excluder, extending from the vamp to the top of the boot, and is fastened by means of raw hide lacings, which pass through eyes near the vamp, but around hooks the rest of the way, making the boot convenient to slip on. The whole is a natty appearing, yet practical, boot for the hunter. [La Crosse Rubber Mills Co., La Crosse, Wisconsin.]

BLACKSTONE VACUUM MASSAGER.

THE Blackstone vacuum massager is an appliance to be used in any bathroom. As shown in the illustration it has a faucet connection, and a large rubber bulb to which is attached a rubber tube connecting with a small pipe on the side. The "applicator" or massager is attached to the other end of the tubing, through which the running water which operates the massage device passes. To cleanse the instrument the "applicator" should be placed in hot water while the suction is on, and the water will pass through the cylinder, carrying with it all refuse matter, which discharges itself through the bottom of the cylinder. [Blackstone Manufacturing Co., Chicago.]



BLACKSTONE VACUUM MASSAGER.

discharges itself through the bottom of the cylinder. [Blackstone Manufacturing Co., Chicago.]

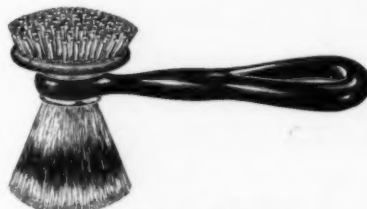
THEY GUARANTEE FOR 5,000 MILES!

A TIRE renovating method for which much is claimed, is known as the "triple tread" process. With the old tire casing for a basis, the process consists of a heavy application of rubber, covered with two plies of French chrome leather. It is claimed that the close adherence of the two substances produces a com-

bined resiliency and durability. An outside coating of rubber studded with 3 to 6 rows (according to size of casing) of hardened steel studs tends to make the tire skid proof. This process may be applied to any tire. [Triple Tread Manufacturing Co., Chicago.]

"LUXURY" LATHER BRUSH.

A LATHER brush constructed on the old time "dauber" plan, with bristles attached to one side of a disk shaped end of the handle, and having 150 round red rubber fingers on its other side, is novel in shape and purpose, which is said to so soften the beard as to materially promote the comfort of shaving, strengthen the texture of the skin, and possess general massage properties. [Luxury Sales Co., Troy, New York.]



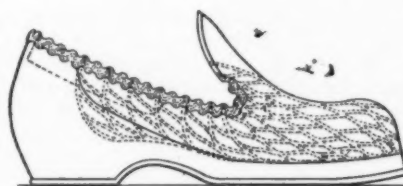
THE "LUXURY" BRUSH.

NEW FORMS OF RUBBERSET BRUSHES.

THE Rubberset Brush Co. (Newark, New Jersey), who have made a wonderful success in shaving brushes set in vulcanized rubber, have conferred a distinct service upon humanity in producing a rubberset tooth brush, the bristles of which stay where they belong instead of wandering around the roof of the mouth, and finally lodging in the epiglottis. The same company are also marketing a rubberset hair brush.

STILL ANOTHER OVERSHOE.

A NEWLY patented rubber overshoe has for its object the retention of shape, and at the same time to prevent the foot from sweating. Also it is intended to be proof against splitting at the points most subject to strain, and to so securely engage the leather shoe as not to pull off on becoming stuck in the mud. It has a thickened marginal edge, inclined on its inner face to provide an inside overhang, and a fluted formation and a corrugated reinforcing wire embedded in the thickened edge and corresponding in shape to the fluted formation, the upstanding portions of the corrugations extending into the upstanding portion



TRAFTON'S NEW OVERSHOE.

of the pleated surfaces of the thickened edge. [Leigh B. Trafton, Limestone, Maine.]

A CORK CENTERED BASEBALL.

AN innovation in baseball manufacture is a new cork centered ball, succeeding the ball with the rubber center in vogue since the early '80's. Instead of a solid rubber center, the new ball has a cork center with a corrugated Pará rubber covering $\frac{1}{8}$ inch thick. In weight and size it complies with the requirements of the official rules, and is claimed to be a decided improvement, both from a league and amateur standpoint, over any ball previously offered. It is said to be yielding and consequently more durable than the old type of ball. [A. J. Reach Co., Philadelphia.]

THE NEWEST BICYCLE GRIP.

THE "Wear-Well" rubber grip for use on bicycle handles, made over a single smooth metal tube, of fine Pará rubber, is soft and resilient, entirely seamless, and shaped to fit the hand. The rubber is firmly secured at either end by broad ferrules of German silver. The advantages claimed for it are that it will not slip, crack, peel, or sweat the hands. [Haverford Grip Co., Philadelphia, are the manufacturers.]



SAFETY TIRE AIR GAGE.

A SMALL and inexpensive tire gage is practically a combination pump tire connection. Attached to valve stem, it opens the valve and allows the air to return to the gage, thus indicating at all times the pressure, but does not allow it to return to the pump. [Safety Tire Gauge Co., Chicago.]



A RUBBER TIRED TOP.

THE "Ideal" ball bearing top, consisting of a nickel plated ball bearing flywheel around which runs a rubber tire, and through the center of which passes a perpendicular spindle, is a toy unique in its line. With each top is packed a set of 6 brilliantly colored disks. The record spin is 5 minutes 43 seconds. [Cushman & Denison Manufacturing Co., New York.]



"IDEAL" BALL BEARING TOP.

"KNEAD-IT."

A TIRE repairing substance called "Knead It" is claimed to be an inexpensive and quick operating substitute for vulcanized repairs. A small quantity applied to a cut will securely seal it, and prevent rotting of fabric, sand pockets and blow-outs. [The M. & M. Manufacturing Co., Akron, Ohio.]

NOVELTIES BRIEFLY MENTIONED.

ONE of the latest improvements is the manufacture of rainproof straw hats. Heretofore water either badly discolored the straw, spotting or turning it a sickly yellow, or else ruining it outright.

The users of dress shields will be glad to know that one need no longer sew, baste or pin them in. The Kleinert shields are now made with "snaps," which are fastened one at each end of the shield and with no trouble can easily be snapped into the sleeve of the dress. These snaps come either on the shields or can be bought separately.

A new line that the Chicago Rubber Clothing Co. (Racine, Wisconsin), have added is automobile top cloths.

The I. B. Kleinert Rubber Co. (New York) are marketing a hose supporter, the "Buster Brown." They claim for it the best quality of rubber, twice the usual quantity and much longer wear than other makes afford.

A unique use for worn-out automobile tire shoes is that of a tugboat bow fender. All tugs are fitted with fenders, usually of braided rope, padded with cork. They are essential, for tugs are continually nosing and rubbing against the sides of wharves and vessels. The rope fender, which really is a work of art, costs anywhere from \$20 to \$50, and at the best lasts barely two years. And old worn-out tire shoe, costing from \$2 to \$4 is therefore a decided saving.

A BOOK for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

FALL STYLES IN LADIES' RAINCOATS.

THE new fall models of ladies' raincoats are very mannish in material and in cut. The length varies from 52 to 58 inches, coming well to the bottom of the skirt. For the loose fitting back the Raglan sleeve, patterned from the English models, is one of the best styles. The new combination collar is quite in vogue. It can be worn in three different ways—as a low collar, a high collar, or, in stormy weather, in military fashion. The materials vary from those with plaid backs to moires and fancy silks. Silk double textures are also attracting much attention, and are cut very mannish. The colors are all very quiet; gray, tan, dark blue, and dark red being preferred.

An advance fall style of ladies' rubberized wrap now being manufactured is a silk single-breasted cape, coming to the bottom of the dress, with a high turnover collar, and fastened with five metal buttons in the front. It is had in all ordinary sizes, and in colors of olive and tan. It can be worn in all weathers and as an evening wrap if so desired.



"AUTO" SILK RUBBERIZED.



CHILD'S STORM CAPE.

Storm capes for children are coming more and more into fashion. They are waterproof, of fast color material, light in weight, and chic in fit. The hood has a pretty plaid silk lining and ties; the buttons are "teddy bear" with pearl fasteners. The cape comes in a great variety of colors and in sizes to fit ages of 4 to 18 years.

THE FITTING OF RAINCOATS.

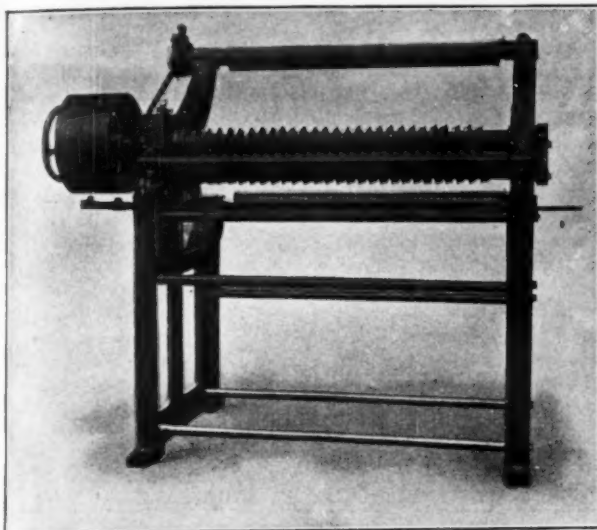
It is wonderful how ready-made clothiers are able today to fit the average man. This is done by keeping a careful record of changes asked for by customers during the year, averaging them up and cutting patterns to suit these averages. The same system obtains in making the better class garments in raincoats and mackintoshes. That is why such excellent fits are turned out by the best houses; it is also why the garments ten years ago would hardly find a market anywhere.

THE British chancellor of the exchequer (Mr. David Lloyd George) in a recent speech in Parliament mentioned that the stamp revenue from the London Stock Exchange had been largely augmented by the "boom" in rubber and in oil. He was inclined to think that during last year the increase in revenue from new promotion in rubber and oil amounted to something like £300,000 [≈\$2,500,000]. Mr. Lloyd George was not certain whether the government could count upon a continuation of such revenue from the rubber "boom" very much longer.

New Rubber Factory Appliances.

RUBBER STRIP CUTTING MACHINE.

THE first illustration on this page is that of a machine designed for cutting rubber strips. The regular size has twenty-eight pairs of concave circular knives. The knives are placed on two steel shafts and are quickly adjusted to cut different widths from $\frac{1}{4}$ -inch up without moving spindles. The stock to be cut passes over a roll in front of the



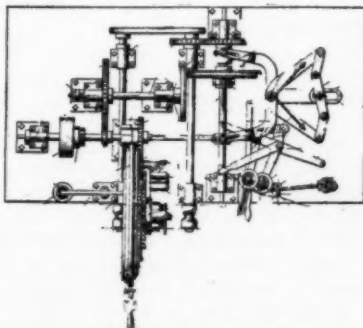
RUBBER STRIP CUTTING MACHINE.

[Made by Trenon Machine Specialty Co.]

knives, then on between the cutting disks and over another roll. This roll is driven at a greater speed than the knives so as to form an even tension. The stock is then divided and wound upon rolls with a friction device for increasing or decreasing the tension as the roll increases in diameter. The knives travel about 150 revolutions per minute.

TIRE WRAPPING MACHINE.

THE illustration shows a machine for wrapping as well as unwrapping tires. The construction of the machine is such that the tire can be rotated alternately and separately from the wrapping device, and in an opposite direction. In this manner tape is cross wrapped over the tire. In unwrapping the machine is reversed and the tape is wound upon a spool.

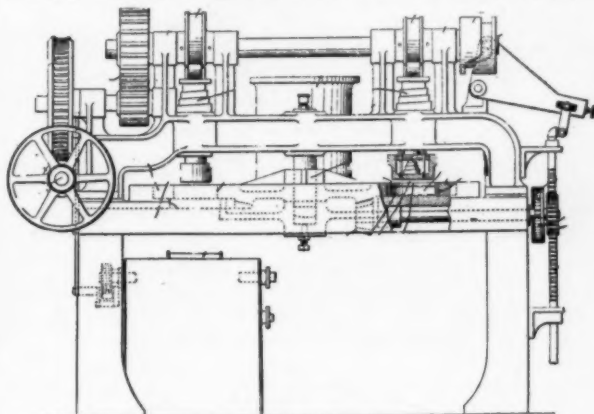


TIRE WRAPPING MACHINE.

[United States Patent to Nelson E. Raber.]

MACHINE FOR MOLDING RUBBER BISCUITS.

THIS machine is driven by a worm screw connected by a gear wheel to a shaft. On the shaft are two cams that operate plungers held in position by spiral springs. In the center of the machine is a vessel for holding the heated material. This passes from the vessel to the mold and is pressed by the plunger, passing by mechanical means to the other side of the



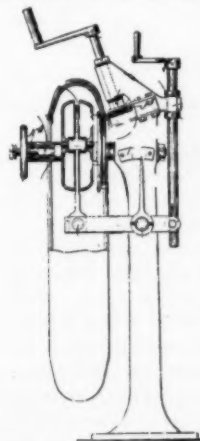
MACHINE FOR MOLDING RUBBER BISCUITS.

[Patent to British Murac Syndicate and M. M. Dessau.]

machine, where the plunger presses it through an opening onto a conveyor belt by which the biscuits are drawn through water for cooling.

MACHINE FOR MANUFACTURING TIRES.

THIS machine is designed for pressing or rolling the fabric and rubber tight together after the tire has been wholly or partly built up. The tire is mounted on a stand, with two



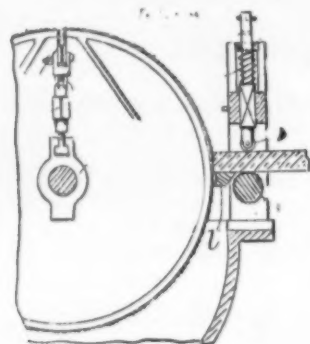
MACHINE FOR MANUFACTURING TIRES.

[British Patent to Thomas Sloper.]

pressure rolls, one inside and the other outside, worked in unison, while the tire is rotated. In this manner the parts are tightly pressed together.

POWDERING RUBBER WASTE.

A RASPING device for powdering rubber waste consists first of a cylinder with a roughened surface. Then running parallel to the cylinder is a spiked feed roll that presses the stock against

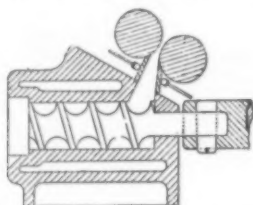


POWDERING RUBBER WASTE.
[British Patent to T. Gare.]

the rasping cylinder. Pressure rolls are mounted on rods with spiral rings to form a tension above the feed roll and hold the stock in position. The powdered rubber falls through a chute in the bottom of the device and is then ready for use.

SELF-FEEDING TUBING MACHINE.

THIS device may be described as an ordinary tubing machine, having a worm screw for forcing the stock through a die into tubes, tires, and the like. In addition, there are two feed rolls



SELF-FEEDING TUBING MACHINE.
[British Patent to J. C. Kay & Co.]

placed at an angle above the opening in the tubing machine. These rolls are driven so as to feed the stock into the machine as fast as necessary.

AN OLD TIME RAIN DEFIER.

SUCH rains as the oldest inhabitants had never seen the like of fell in England in the year 1801, on June 30, very opportunely for the proprietors of a then new patented process for waterproofing cloth. These gentlemen were enabled thereby to collect a lot of testimonials in behalf of their fabrics, more enthusiastic in character than any writers of these modern degenerate days could hope to produce. Wearers of the proofed garments who happened to be caught in that torrential rain had only to wipe them gently with a pocket handkerchief and they were as dry as ever, whereas less lucky individuals went to bed, while their clothes were obliged to be hung some hours before a large fire. Very many persons lost their lives in that memorable rain, but none who wore Ackerman, Suardy & Co.'s waterproof clothes.

In a quaint booklet got out in the same year to describe the wonderful process—but which gives no hint of its nature—one reads that it “does not in the smallest degree stop the interstices of the cloth, canvas, cotton, or silk”; that water poured on a cloth stretched over a glass will not run through, though you “repeatedly run a pin or needle through the cloth”; in the case of colored fabrics submitted to the waterproofing process, they “were rendered of a higher and more beautiful tint.”

“But without resorting to the regions of romance - - - what

an improvement would it be to the sheathing paper, with which the copper bottomed ships are lined!”

The leading text of the booklet is the danger of catching deadly colds from getting one's clothing wet from exposure to rain. And in this connection appears a gem of American history not found even in every great library:

The first settlers of America (Quakers), sensible of the dangers that resulted from their drab coloured suits being saturated with rain, adopted a curious expedient to evade it. When they were travelling, and saw a thunder storm approaching, they knew that taking shelter under a tree was dangerous; and therefore generally ran into the middle of a field, where they stripped off all their clothes, and having bundled them together sat upon them until the rain ceased.

How much more comfortable they might have been if provided with patent waterproofs! The Prince of Wales, to avoid any such possible embarrassment, “not only ordered all his own clothes should be made the same,” but that the dresses of all his household, “from the highest to the lowest,” should be waterproofed. All this and much more is recorded in the little work entitled:

ANALYTICAL HINTS

RELATIVE

TO THE PROCESS

OF

ACKERMANN, SUARDY, & CO'S.

Manufactories

FOR

WATERPROOF CLOTHS, AND WEARING-
APPAREL,

AT

BELGRAVE-PLACE, CHELSEA,

AND AT

MESSRS. DOUGLASS AND CO'S MANUFACTORY,
CUPER'S BRIDGE, LAMBETH,

London:

PRINTED FOR THE PROPRIETOR, AND SOLD BY T. HURST,
NO. 52, PATERNOSTER-ROW,
And all Bookellers in Great Britain.

E. SPRAGG, PRINTER 27 BOW-STREET, COVENT-GARDEN.

The title page is undated, but there are internal indications that the pamphlet appeared before the end of 1801. The British patent office records show that on April 28, in that year, application was made for a patent—granted later as No. 2491—by Rudolph Ackermann and Peter James Cutteau, which is thus described:

“For a new improved method of rendering all sorts of woolen clothes, cotton, linen, silk, hats, paper, and other manufactures and substances, perfectly waterproof, and so as to be used on all occasions where a power of repelling rain, wet, or moisture may be required.” No specification was enrolled. The invention is not listed among British patents relating to india-rubber. There were, however, two British patents of earlier date for the use of rubber in waterproofing.

[NOTE.—This interesting relic of the early waterproofing trade has been brought to the notice of THE INDIA RUBBER WORLD through the favor of Messrs. Hodgman Rubber Co., of New York.]

Some Rubber Interests in Europe.

GERMANY'S RUBBER FOOTWEAR TRADE.

THE annual report of the Harburg Chamber of Commerce contains some remarks on the rubber shoe trade during 1909 that may be summarized as follows:

"The rubber shoe business was quiet at the beginning of the year. In 1908 snow did not fall until after Christmas, and dealers consequently still had full stocks left on hand. In the following year, however, as there were very heavy snowstorms in central and southern Germany during November, and a good deal of snow subsequently in northern Germany, business became considerably more effective, and the stocks left over from the previous season were consequently completely sold out.

"The entire German rubber shoe industry, however, is suffering to quite an extraordinary extent from foreign competition. The importation of foreign made rubber shoes continues very large, being four or five times larger than the German exports. Most of the imports come from Russia and the United States, both of which countries, favored by the low German import duty, are shipping their large surplus output to the German market, knowing its great power of consumption.

"According to the tariff schedule, the German import duty on rubber shoes is 100 marks per kilogram, but this figure has been reduced to 80 marks for all the most favored nations, greatly to the detriment of the German rubber shoe industry. Foreign countries have made rubber shoes subject to a much higher import duty, the same being, for instance—

"In Russia, 220 marks per kilogram.

"In the United States, 30 per cent. *ad valorem*, equal to about 180 marks.

"In Sweden, 130 marks per 100 kilograms.

"The result is that Germany is absolutely unable to export rubber shoes to these countries, while the foreign manufacturers are flooding our market with their products.

"The total imports of foreign made rubber shoes into Germany, during the first ten months of 1909, amounted in weight as follows:

From Russia	kilos	287,600
From the United States		115,800
From Sweden		56,900
From Great Britain		81,100
Total		541,400
[Equipment to 1,191,080 pounds.]		

PROFITS OF HUTCHINSON.

THE annual meeting of Etablissements: Hutchinson—Cie. Nationale due Caoutchouc Souple was held in Paris on June 20. The report showed profits of 1,017,344 francs [= \$193,295.36], against 1,333,080 francs for 1908, and 1,305,579 francs for the preceding year. The reduced earnings were attributed to the high cost of raw material, which was not offset by the advance made in the selling price of products. The dividends were 30 francs per preference share, [the usual 10 per cent.], and 40 francs for the ordinary shares, [12 per cent.], against 50 francs last year. [See THE INDIA RUBBER WORLD, September 1, 1909—page 429.]

GALALITH INDUSTRY IN GERMANY.

THE galalith industry in Germany showed an improvement during 1909, after having suffered from unfavorable market conditions in the preceding year. The factory at Harburg a/d Elbe showed during last year an increased amount of sales and was worked at full capacity. The last report of the Harburg Chamber of Commerce states that the galalith industry would be capable of still further development but for the high import duty in Germany on casein. It was pointed out that articles of general

consumption made from galalith must compete with the products of ivory nuts, horn, and the like. The crude materials for these latter goods, however, can enter Germany without paying an import duty. It is suggested in the Harburg report that casein be placed on the free list, to which suggestion *Gummi-Zeitung* adds that at least a drawback be provided for duties on casein used in Germany in the manufacture of galalith.

PROFITS OF THE RUSSIAN-AMERICAN RUBBER CO.

THE last report of the Russian-American India-Rubber Co. "Treugolnik" (St. Petersburg) shows a record profit for the fiscal year 1909. The figures in the following table relate to values in rubles [1 ruble=51.5 cents]:

	1907.	1908.	1909.
Gross sales.....	\$36,252,040	\$38,953,150	\$61,035,574
Net profits.....	4,016,443	5,845,999	7,868,701
Rate of dividend....	25%	30%	20%
Amount of dividend..	2,000,000	2,400,000	3,600,000

The dividend rate for the last fiscal year, though the amount disbursed was so large, was smaller than in preceding years, on account of the increased capitalization from 8,000,000 rubles to 18,000,000 rubles. The reserve account is now nearly as large.

BERGOUGNAN'S CAPITAL DOUBLED.

THE shareholders of Etablissements Bergougnan, large makers of pneumatic tires at Clermont-Ferrand, have voted to double the amount of their capital stock, the increase being from 6,500,000 francs to 13,000,000 francs [= \$2,509,000]. A portion of the increase is to enable the company to participate in rubber planting. For the latter purpose the Société du Caoutchouc de l'Indo-Chine has been registered in Paris, with 1,500,000 francs capital, and with Mons. R. Bergougnan on the board.

ITALIAN IMPORTS OF TIRES.

WITHIN two years past the importation into Italy of tires for automobiles and bicycles has increased at an important rate. The figures below show the weights (in kilograms) of imports from the various countries as reported officially:

	1908.	1909.
From France	22,000	173,800
From Germany	32,000	160,400
From Great Britain.....	8,600	147,100
From other countries.....	1,600	11,600
Total	64,200	492,900

THE NORTH BRITISH IN FRANCE.

THE North British Rubber Co., Limited (Edinburgh), have been mentioned in these columns already [see THE INDIA RUBBER WORLD, July 1, 1910—page 355] as having undertaken the manufacture of their products in France. They have acquired by purchase the factory of the Société des Caoutchoucs, at Nos. 1-3 rue Henri Murger, Saint Denis, near Paris.

SWEDEN.

THE Russian-American Rubber Co. "Treugolnik," St. Petersburg, report that their only selling place in Sweden ("Galoschbolaget," Stockholm) has ceased to exist. It has temporarily taken the sale of its rubber shoes (with the triangle mark) into its own hands. The wholesale part of the business for Stockholm and the surrounding territory is looked after by the firm of H. Gullberg & Co.

ITALY.

THE growth of the india-rubber industry in Italy indicated by the constant increase of the importation of raw material. The imports of crude rubber during 1908 amounted to 3,192,080 pounds, and in 1909 to 3,448,280 pounds. As recently as 1903 the imports reached only 1,466,960 pounds.

The Editor's Book Table.

ALL THE WORLD'S AIR-SHIPS. (FLYING ANNALS.) FOUNDED and edited by Fred T. Jane, author of "Fighting Ships," etc. With a special chapter on "Aerial Engineering," by Charles de Grave Sell's, M. INST. C. E. London: Sampson Low, Marston & Co., Limited. 1909. [Cloth. Oblong. 8vo. Pp. 370. Price, £1 15.]

A GLANCE at this sumptuous volume will give a clearer idea perhaps than anything else we can recall of the extent of the interest in aeronautics as a practical field of endeavor. It embraces not only a list of several hundred dirigibles and aeroplanes, but in most cases illustrations are given of these from photographs. There will thus be found the views of every type of machine in which aerial flight has been made in any country. It some cases diagrams are given indicating details of construction. This is true of the Zeppelin type for instance, of which four pages of plates are given. In nearly every instance the dimensions are specified, lifting power, motor, propelling and stirring apparatus, details of material used in construction, and so on. Flying machines manufactured in 22 different countries are described, and there is a long list of owners of standard machines. Several essays on aerial engineering are included, and the value of the work is enhanced by a glossary of technical terms in English, French, German and Italian. Considering how new is the art of aviation, its progress has been most astonishing and, as we have indicated, this book sets forth this progress very capably.

TERRY'S MEXICO. HANDBOOK FOR TRAVELERS. BY T. PHILIP Terry. City of Mexico: Sonora News Co. Boston: Houghton Mifflin Co. 1909. [Cloth. 12mo. Pp. cxxi + 395 + plates. Price, \$2.50 gold.]

The highest standard of guide book making has been aimed at by the scholarly compiler of this new help to travelers in Mexico. Mr. Terry is thoroughly acquainted with the Mexican republic and its people; he is aware likewise what intelligent travelers are most likely to be interested in, whether in the way of antiquities or present day life; and last but not least he possesses the capacity to impart knowledge of the kind referred to in a pleasing and helpful way. Mr. Terry acknowledges his indebtedness to the Baedeker form of guide book as the basis of style of his own work, and Baedeker is widely acknowledged as the best in existence. This book not only tells how to get to any place on the Mexican map, but has general suggestions as to when to travel, how to understand local customs, and particularly how to figure in Mexican money. It has a good map of Mexico, 25 plans of cities and districts, and a very full index. The book is pocket size, printed on "Bible paper," and bound in flexible cloth.

THE GREAT STATES OF SOUTH AMERICA. A CONCISE ACCOUNT of Their Condition and Resources, with the Laws Relating to Government Concessions. By Charles W. Domville-Fife. London: G. Bell & Sons, Limited. 1910. [Cloth. 8vo. Pp. xv. + 235 + maps and plates. Price 12s. 6d.]

In view of the growing interest in South American affairs in Europe and the United States, the appearance at this time of a book of the character indicated in the above title is particularly fortunate, and all the more so since it comes from a hand so competent. The author, who has published other South American studies, points out that in order to describe so large an area within a book of moderate size he has felt obliged to sacrifice literary style to bare statement of fact. None the less the style in which this book is written is attractive, and the business details are so intermingled with the author's comments as to make the whole alike readable. Besides, one who once gets the book in hand will be tempted to examine the unusually good half tone pictures, of which there are nearly a hundred, in addition to eight good maps.

This book ought to be interesting to North American readers just now if for no other reason than that their country is represented in the Pan-American Congress at Buenos Aires, which

meeting is likely to do so much towards fostering closer relations between the two greater divisions of America. Mr. Domville-Fife's book will be helpful in the matter of acquainting us as a people with our neighbors in the far South.

Our author makes numerous references to rubber, but they have not always been clear to some of his reviewers. When, for instance, he speaks of "rubber and caoutchouc" (page 88) there might have been a clearer use of definitions. At another place he does refer to the "caucho tree" (page 158) and this term should have been used throughout when *Hevea* rubber (Pará) is not referred to. *Caucho*, of course, is the Spanish word for rubber in general, and it came to be used in commerce because the first rubber exported from Spanish South America was of different class from Pará, which came from Portuguese-speaking Brazil. To-day, with both classes of rubber produced in all the countries bordering on the Amazon, it is still convenient to use the term *caucho* to distinguish the product of the *Castilloa* tree.

THE BRAZILIAN YEAR BOOK. ISSUED UNDER THE PATRONAGE of the Brazilian Government. Second Issue—1909. Compiled and Edited by J. P. Wileman, Editor of *The Brazilian Review*, and ex-Director of the Commercial Statistical Service of Brazil. Rio de Janeiro: Brazilian Year Book. London: McCorquodale & Co., Limited. [1910.] [Cloth. 8vo. Pp. xxiv + 826 + pocket map. Price 1 guinea; \$5.50 gold.]

The admirable features of the first issue of this work have been repeated in the volume now before us, with the addition of other matters of interest. For one thing, the trade statistics have been brought forward two years. Mr. Wileman, while no longer at the head of the Brazilian statistical department, retains the intimate knowledge of the financial, commercial, and industrial conditions of the nation with which that position brought him into contact, to say nothing of his position, for so many years, as editor of an important financial paper at the Brazilian capital. While bearing the date 1909, the work has only just been issued from the press.

That Brazil is no unimportant factor in the world's progress, even a cursory glance at this volume will show. In the matter of area it is only slightly less than the United States. The distance from the national capital to Manáos, the rubber center, is 3,204 miles, and there are other places of commercial importance in the country even more remote. There is a much wider range of commerce in Brazil than many readers probably are aware of. The export list is not so large in the number of items, but practically everything manufactured seems to be included among the imports. Speaking of exports, the statistics of rubber are given from 1827, when the transactions included only 69,003 pounds, of the estimated value of £1,053 [= \$5,124.42].

The development of planting as well as of commerce and transportation throughout Brazil has been promoted largely with foreign capital, mainly through joint stock companies, of which an extensive list is given in this book with a most satisfactory fullness of details as to their conditions. Such companies, for instance, are the American companies now improving the harbor at Pará and building the Madeira-Mamoré railway. Ample details are given likewise regarding the public debts, which are created by the several states rather than by the federal government.

Any one wishing to become acquainted with actual conditions in Brazil cannot hope to find in any dozen other sources so much information so well arranged and apparently so authentic as in this volume. A good map of the country is included, and the appearance of the book generally is exceedingly pleasing.

OTHER BOOKS RECEIVED.

INTERNATIONAL CABLE DIRECTORY OF THE WORLD. IN CONNECTION with Western Union Telegraphic Code System. Compiled and published by International Cable Directory Co. New York and London: 1910. [Cloth. 4to. Pp. 964. Price, \$7.50.]

NEW TRADE PUBLICATIONS.

THE BOSTON BELTING Co. issue a brochure devoted to the solid woven cotton belting which they manufacture under the trade mark "Eelskin." This brand is referred to as being adapted for power transmission under widely varying conditions, and also for conveying materials. [3½" x 6". 12 pages.]

HOOD RUBBER Co. (Boston) distribute in the footwear trade a brochure on "The Use and Abuse of Rubbers," the keynote of which is "More rubbers are destroyed from abuse than from actual use." Retailers may find it desirable to aid in the distribution of this pamphlet. [3½" x 5½". 8 pages.]

B. F. STURTEVANT Co. (Hyde Park, Massachusetts) issue Catalogue No. 150 in their Engineering Series. It is devoted to Fuel Economizers and Air Heaters, and is of unusual interest, even for a Sturtevant catalogue. [6½" x 9". 40 pages.] Also, Bulletins Nos. 172, 173, 176, and 177, devoted to various appliances for power plants.

THE new "Engineers' Catalogue" of the NEW YORK BELTING AND PACKING Co., LIMITED, is devoted to Packings for all conditions of service, including, in addition to their long established lines of products in this field, a new line of combination and asbestos packings. The booklet is fully illustrated with detailed descriptions of the different brands of goods, and is intended for ready reference in the engine room. [5" x 7½". 72 pages.]

NEW YORK RUBBER Co. (New York) distribute to their patrons, in a substantial red leather cover, a "loose leaf" Price List, applying to their various products of mechanical rubber goods. There are included blank for discounts, and a four-page telegraph code. [3¾" x 7". 104 pages.]

THE B. F. GOODRICH Co. (Akron, Ohio), have issued many attractive advertising publications, all of them interesting to the trade, but probably none that outranks in these respects a booklet labeled "The Passing Show." It relates to the exhibits of Goodrich tires at the most recent automobile show in each of twenty-one cities. On each page appears a photographic view of the interior of one of the automobile shows. [6" x 7½". 24 pages.]

THE AMERICAN WRINGER Co. (New York), issue their Catalogue No. 9 of "Horseshoe Brand" clothes wringers and wringing machines. Clothes wringers are not as nearly all alike as one might suppose, as is indicated by the appearance in this book of illustrations of nearly a hundred different products of this one company. The illustrations are colored, indicating more clearly the appearance of the different wringers described. The wholesale price list of these wringers fills 12 good sized pages. [6¼" x 9¾". 104 pages.]

THE NEW YORK MACKINTOSH Co. (New York) issue a neat booklet showing their "Bestyette" rainproof "outer garments for the whole family," illustrated with styles which are least affected by changes in fashion; in other words, garments which they regard as staples. [3¼" x 6½". 16 pages.]

RUBBERSET Co. (Newark, New Jersey) describe in their Catalogue No. 11 more styles of Rubberset Shaving Brushes than might be supposed to exist by one who has not followed recently the rapid development in the growth of the demand for this class of brushes. The various styles, whether shaving brushes, tooth brushes, paint brushes, or what not, are illustrated. [5¾" x 7". 18 pages.]

W. D. ALLEN MANUFACTURING Co. (Chicago) issued during the month their Catalogue No. 28, which is the most extensive and complete production in its line which at any time has appeared in connection with the rubber trade. It will be remembered that Messrs. Allen do not specialize in rubber, their catalogues being devoted first to leather belting and accessories, and later on to a great variety of brass goods, which have a relation more or less to products of rubber factories. At the same time this

catalogue has a very extensive list of packings manufactured by the Allen firm, to which is added a catalogue of other standard packings, which they handle; also rubber belting and many other items of rubber, including many specialties, such as rubber coats for firemen, which are appropriate in a catalogue which covers so many fire department supplies. This firm is known to THE INDIA RUBBER WORLD's readers as the manufacturers of perhaps the most complete line of lawn sprinklers sold by any firm. All their specialties in this line are illustrated and fully described in the volume under review. This catalogue forms a handsomely got-up volume in red cloth, making of it a volume more substantial than is usual in the trade. [7" x 10". 638 pages].

ALSO RECEIVED.

THE Hartford Rubber Works Co., Hartford, Connecticut.—Hartford Tires Will Not Slip. 12 pages.
Westinghouse Electric and Manufacturing Co., Pittsburgh, Pennsylvania.—Electrically Heated Matrix Driers. 8 pages.
The B. F. Goodrich Co., Akron, Ohio.—Straight to the Mark. [Relates to endurance of Goodrich tires.] 16 pages.

FIRE AT THE BRUSSELS EXPOSITION.

A FIRE started in the Belgian section of the International Exhibition at Brussels on the evening of August 14 and rapidly spread over the grounds, doing a great amount of damage. It has been estimated that the companies who had written insurance upon the exhibits will have to pay \$10,000,000 or more. No lives were lost, though something like 100,000 people were within the exhibition limits. This was one of the best exhibitions which has been held in Belgium, a country particularly skilled in organizing world shows. The exposition was closed to permit of the removal of debris and the later reopening of such sections as were not destroyed. The plan of the exposition provided for exhibits of rubber from many countries, and one such exhibit was the important collection of rubber specimens shown at Manáos, Brazil, in connection with the rubber congress there last February.

The fire destroyed a very complete display of rubber stamp vulcanizers and rubber stamps and like goods belonging to the J. F. W. Dorman Co. (Baltimore, Maryland). The Dorman company won a gold medal for this display last year at Earl's Court, London, after which it was transferred to Brussels.

REPUDIATED BY MR. MACBEAN.

IN the last issue of this journal (page 377) appeared, with credit to an esteemed contemporary, what purported to be an interview with Mr. Edward Macbean, of Glasgow, on the subject of reclaimed rubber. Mr. Macbean, who was the founder and is still the head of the important oil clothing and waterproofing house of Edward Macbean & Co., Limited, advises THE INDIA RUBBER WORLD that not only has he no views to express regarding synthetic rubber, but he has submitted to no interview on this subject for any journal whatever. He particularly would not like to be held responsible for certain expressions appearing in the article referred to.

A PATENT LAW AMENDMENT.

IT may be of interest to our readers who may have business pending with the United States patent office, or who have been applicants for patents in the past, to be informed that by an act of the Congress at the last session that portion of the patent laws relating to caveats was repealed to take effect from July 1, this year. In brief, a provision of the law formerly was that by filing a "caveat" in the patent office one who was engaged upon an invention was entitled to notice of any application for a patent for an interfering invention during one year, while he was perfecting his own. The new act is declared not to apply to any caveat filed prior to July 1.

THE RUBBER TRADE IN SAN FRANCISCO.

BY A RESIDENT CORRESPONDENT.

FORTUNATELY for the good nature of the local merchants, there is always something to look forward to and always something developing which promises to bring back the long-lost period of prosperity. Just at present attention is being given to the election of a governor and other state and county officers. The primary election is supposed to practically determine who the future officers will be, and when this matter is settled it is hoped and believed that people can settle down to business again. Another matter which is expected to bring a great amount of business to this city and the coast is a proposed world's fair.

So artful have the politicians been by putting New Orleans into competition with San Francisco that this city and state are making gigantic efforts to make the fair certain, and although the United States congress has so far asked that the city put up at least \$7,500,000, the fear that New Orleans may subscribe a like amount has induced the present governor to plan to raise another \$5,000,000 by taxation, and the city proposes to raise \$5,000,000 by taxation, and as the people have already voluntarily subscribed the first amount required, there will be the sum of \$17,500,000 with which to make a show that will be worth while.

These two contingent events, taken in connection with the favorable crop reports, the unusual productiveness of the mines and oil wells, are enough to satisfy the most forlorn that conditions are ripe for the development of a flourishing business.

In the rubber trade those merchants who have sufficient capital are planning—probably ahead of their present incomes—to make preparation for the big business which they are certain is coming. None of the houses that can afford it is holding back in the matter of improvements simply because business just now may not warrant it. Others who are not financially strong enough to be reckless in expenditures are nevertheless working patiently and securing results which under present conditions are satisfactory.

The mechanical lines have had a turn at quiet business and the druggists' sundries branch is more active than usual. Trade throughout the interior sections of the coast territory is generally good, and if the trade of the larger cities were anywhere near proportionately good there would be no complaint anywhere.

THE Sanitary Plumbing Appliance Co. has recently been incorporated, with offices in the Sheldon building. The company has been organized by G. H. Brown as president and manager, and R. O. Mead treasurer, and is making a business of handling specialties, but principally a new sanitary toilet appliance invented by Mr. Brown, and which promises to be a success. It is a rubber gasket which is used to make the connection at the base of a toilet with the sewer pipe, instead of using the putty connection used heretofore. The gasket is being manufactured by the Phoenix Rubber Co.

THE Pacific Coast Rubber Co., in furtherance of their plan to carry everything in the rubber line, have made a new departure and are now carrying a complete line of druggists' sundries, manufactured by the same well-known firm which makes their shoe line, the Goodyear's India Rubber Glove Manufacturing Co. "We have received our first shipments," said Mr. Winslow, the manager, "and we are sending out three lines on the road this week. We expect this department to work in nicely with our other lines, and we will have everything in rubber before we get through."

The report from the Gutta Percha and Rubber Manufacturing Co. is that business has been picking up right along, and now can be said to be very good in the country. Trade is undoubt-

edly quiet in San Francisco, but the indications point to a renewal of activity there.

The Boston Belting Co.'s branch, under Mr. A. T. Dunbar, is gradually getting in its new stock and supplying orders. It has been slow work getting the goods, but the firm has plenty of room and a big stock coming so that they expect to soon be actively in the running.

MR. BOWERS gave the factory and office employes of the Bowers Rubber Works a big picnic this month, this being the third annual picnic given to them. He chartered a boat and took them up the river to Isleton, and there were over 300 in all. This establishment reports that business has been good for this season.

H. C. Norton, manager of the American Rubber Manufacturing Co., has returned from the springs, where he has been recuperating from his recent illness.

MR. C. E. MATHEWSON, manager of the Pacific Coast branch of The Diamond Rubber Co. (Akron, Ohio), is away on an automobile trip to the northernmost parts of the state, to spend a month deer hunting. He is accompanied by Frank Fageol, the Oakland agent for the "Rambler" automobile. Their destination is a big ranch owned by Mayor Mott, of Oakland.

Mr. William J. Gorham, of the Gorham Rubber Co., and the company's San Francisco manager, William Heckmann, are down at Catalina on a month's hunting trip. Business is reported as satisfactory at the big store. It is said that the Goodrich people recently offered Mr. Gorham \$500,000 for his business, but the offer was refused.

Mr. J. H. Cobb, of the New York Belting and Packing Co., Limited, spent a few days in San Francisco this month and expressed his appreciation of the good work being done by the local branch.

AMERICAN TRADE IN GERMANY.

THE American Association of Commerce and Trade, at Berlin, founded seven years ago by Americans, is run by Americans on American lines for the purpose of promoting American trade with Germany, and German trade with the United States. This is a thoroughly American institution, organized especially for assisting American business firms to start branches in Germany. The organization has the most complete American reading room in the empire, in which are filed 30 daily American papers and 150 trade publications, all United States government reports and statistics, directories of the leading American and German cities, and the principal telegraph codes—all of which are at the disposal of American business men and travelers visiting Berlin. This association appeals to all American business men intending to do business in Germany, whether temporary or permanent. It deserves the support of American business firms, as it can help them as perhaps no other institution or commercial agency can.

THE WORKING QUALITIES OF FOSSIL FLOUR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Please have the rubber goods manufacturers inform the trade, through your publication, what the difference is in the working qualities of fossil flour, kieselgu or an infusorial earth; also tripolite and diatomaceous earth. My reason for asking is to secure information wherein one or the other of the fillers named are employed to the disadvantage of the other, when in reality they are one and the same character of goods.

A MERCHANT.

New York, July 17, 1910.

INDIANAPOLIS, the *Financial News* (London) hears, has eleven automobile factories which have contracts for the production of 20,000 cars for the 1910 trade.

The Goodrich Company Forty Years Old.

IT is an interesting coincidence that the measures to increase the capitalization of The B. F. Goodrich Co. (Akron, Ohio) to \$20,000,000, marking an unprecedented rate of growth in a rubber manufacturing company, should occur at a time when an article was being prepared in the offices of this paper in commemoration of the fortieth anniversary of the company. The historical details are therefore presented in the present number.

The history of the india-rubber industry in Akron dates back forty years ago, when there came into the hands of a young physician in New York an advertising folder that had been distributed by fifteen business men of the Ohio town, who had constituted themselves into a sort of board of trade. It was really a private organization, supported by its members with a view to the general good of Akron. Colonel George T. Perkins and Mr. George W. Crouse are the two surviving members of the original group.

In glowing terms this little circular described the advantages Akron offered to manufacturers, though at that time there were few if any factories in that town. The young physician mentioned was Benjamin Franklin Goodrich, born in Ripley, New York, a graduate of medicine at Cleveland, Ohio; an army hospital steward during the civil war; and after the war attempting in New York to carve out a business career. With the aid of a friend, Harvey W. Tew, he gained control of a small rubber factory just below Tarrytown-on-Hudson (New York), but this was not any too successful, and when the circular from Akron came to hand it offered a new inspiration to the young doctor.

So, in 1870, Goodrich went to Akron and faced the board of trade. The result was the machinery was moved from Tarrytown and set up in a little brick shop at the corner of South Main (now Rubber) street, toward the end of the year. The ground secured cost \$1,800, only one-half of which sum represented a cash investment. The new concern was known as "Akron Rubber Works—Goodrich, Tew & Co.," the second member of the firm being the Mr. Tew who had been interested with Dr. Goodrich at Tarrytown, and the "Co." being

23 Akron men who had made up between them \$13,000, which they loaned to Dr. Goodrich.

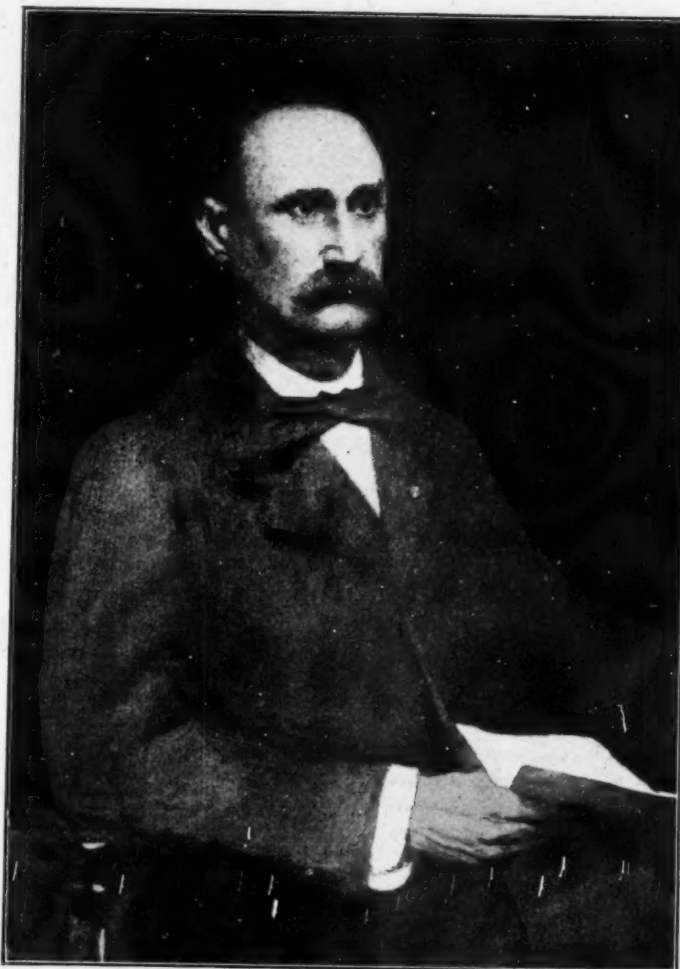
Such was the modest beginning of the first attempt to make rubber goods in the United States, outside of the eastern and industrially established part of the country. Only 25 men were employed during the first year, when the output consisted chiefly of belting and packing. Hose and molded goods were made shortly after. It was a wild scheme, the town thought, and few had faith in Dr. Goodrich or his enterprise. Indeed, the individual who advanced real money upon notes of the company was considered "easy," but the man at the head had a will; he was not one of the kind of men that fail. He believed in the merit of the products of his factory.

Mr. Crouse, who was a friend of Goodrich in the beginning, says: "He had the keenest eyes of any man I ever saw. He thought things out for himself, and when he came to a conclusion of his own, no power on earth could swerve him. He told me of many things that would happen, and they did happen just as he said—some of them long after his death. He was a man who looked far ahead and laid foundations for the development that came years afterward."

In 1880 the business was incorporated under its present title—The B. F. Goodrich Co.—with a capitalization of \$100,000, and Dr. Goodrich then offered to pay back to the twenty-three men who had helped to finance his enterprise

the \$13,000 he owed them, or else give them stock in the company. Twenty-one of them took the money. Colonel George T. Perkins and Mr. George W. Crouse took stock. Both were so well-to-do that the small amount they left in Dr. Goodrich's company mattered little. It was not long before their rubber stock made them wealthy.

One of the most successful ventures of the Akron rubber works at that time was the manufacture of fire hose, a line which still maintains a high position in the trade. The molded goods department was also developed so successfully that this department now fills one of the company's largest buildings, giving employment to some 200 men simply in the machine shop



BENJAMIN FRANKLIN GOODRICH.

[Founder of The B. F. Goodrich Co. Born 1848; died 1888. From a painting by Frank Werner, from an old daguerrotype.]



BIRD'S EYE VIEW OF THE PLANT OF THE B. F. GOODRICH CO. (AKRON, OHIO).

for making molds. It was not long after the incorporation of this company that the first factory enlargement was made. This was small, but it was followed by others as the business of the company developed, until buildings began to be added every year. Ultimately plans were adopted for the entire rebuilding of the plant, so that all structures put up since 1906 have been of reinforced concrete, and to-day the removal of all the old buildings has been about completed.

Upon the site of the first little brick structure occupied by Dr. Goodrich and his friend, Tew, now stands a complete building, six stories high, 330 x 80 feet, and there are several other buildings of the same size. A single new building now under construction will contain a greater floor area than the entire Goodrich plant did ten years ago. The company is said to have the largest mechanical rubber goods factory in the world. It is the most extensive institution in existence with an output representing every kind of rubber product other than insulated wire and waterproof clothing. The buildings cover twenty-two acres of ground and an army of employes works in well lighted and clean rooms. The thousand men who work at night have the benefit of 10,000 incandescent and 135 arc lights. Naturally the development of a business from such small beginning to one justifying a capitalization of \$20,000,000, has been the result of a finely organized system, represented to-day by combination of twenty-five separate departments, each largely independent, but all combined together under one administration.

The buildings in Akron are not all that are owned by the

company. The structure which they own in New York is a notable addition to the business buildings of the city. In Boston a very extensive building is devoted entirely to the needs of the company. They have branches in twenty other American cities, and likewise in London, in Paris, in Mexico, and in Toronto. Thus wherever a demand exists for their goods there is a center from which their customers can readily be served.

The development which the company has contributed to the entire rubber manufacturing industry is no less striking. Beginning with the primitive effort of Goodrich, Akron is regarded now throughout the world as the rubber factory center of the United States. It is the manufacturing home to-day of fourteen rubber companies.

AKRON RUBBER WORKS.

GOODRICH, TEW & CO.

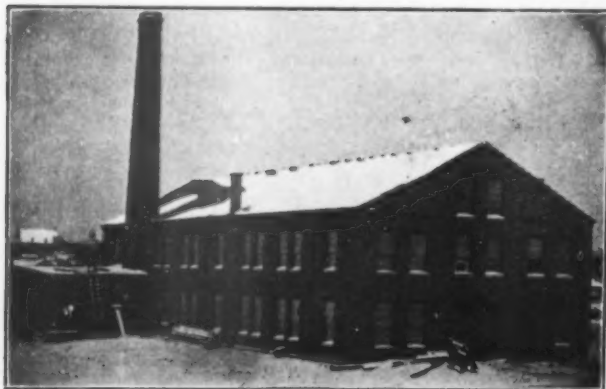
FROM AN EARLY GOODRICH LETTER HEAD.

Dr. Goodrich did not live to witness the substantial success of his company, having died in time for his obituary to be reported in the initial issue of *THE INDIA RUBBER WORLD* twenty-one years ago. Many fortunes have been made meanwhile by his associates, who remained in the business, or who grow up in its employ. This does not apply, however, to his earliest business partner, who retired before he felt the profits of the business to be assured.

Sketches of Colonel Perkins, long time president of The B. F. Goodrich Co., of Mr. Bertram G. Work, long the active head and now president; the late Henry C. Corson, and of others who have contributed actively to the success of the company, have appeared in these pages.

The imports into Germany of Mexican rubber during the first six months of 1910 amounted to 1,383,140 pounds, against 950,120 pounds for the same months of last year. The greater part of this must be presumed to be guayule rubber.

In the interest of economy orders have been issued to the employes of the Southern Pacific Railroad Co. to be more careful in the use of rubber bands, and to use twine whenever this will answer the same purpose. The company used \$7,000 worth of rubber bands last year.



THE ORIGINAL GOODRICH RUBBER FACTORY.

The Rubber Planting Interest.

NEW RUBBER PLANTATION REQUISITES.

THE development of rubber plantations and of improved methods of dealing with forest rubber has led to the introduction into commerce of a great number of appliances and commodities which formerly were not dealt with in connection with the rubber interest in any way. This statement is suggested by a reference to a recent copy of a newspaper published at Kuala Lumpur, Selangor, Federated Malay States, the capital of the principal rubber planting territory yet developed. In a single issue of this paper are mentioned rubber tapping knives of many types, patented coagulating machines, presses for blocking rubber, apparatus for turning rubber out into crepe, sheets, and the like, and so on. A single firm mentioned offer four different styles of tapping tools. Vacuum driers are named also. An advertisement relates to sprayers for killing lalang grass, and weeds generally, at a less cost than their extermination otherwise would involve. There are other sprayers, charged with special poisons, for killing the white ants, which are among the most troublesome pests on rubber plantations. Cups for latex are mentioned in great variety—white glass, green glass, glazed porcelain, terne plate, glazed earthenware (English and Chinese makes), and other types. Glazed earthenware coagulating dishes are described, together with new rubber coagulants, and special mixtures for manuring rubber plantations. The same paper informs its readers where to buy medicines of interest to white men in the tropics, automobiles, typewriters, cameras, condensed milk, and what not, and also where to lay bets at a profit on turf events. There is no doubt that the cultivation of rubber has opened a market—at least in certain localities—for innumerable articles not known hitherto to commerce; it would appear also that Britishers going to Kuala Lumpur do not lose touch with the details which render life interesting to them in their own country.

PLANTATION RUBBER IN GERMANY.

AN interesting feature in the report of Dr. John C. Willis, director of the royal botanical gardens in Ceylon, on his recent tour of the world, relates to his visit to the works of the Continental Caoutchouc und Gutta-Percha Compagnie, in Germany. Dr. Willis was informed that the great Hanover company consume about one-thirtieth of the world's production of rubber. He mentions 5,000 employés, steam engines of 5,000 HP., and other details of general interest. What concerned Dr. Willis principally, however, was the quantity of plantation rubber consumed. He saw in the works supplies from the Bukit Rajah, Anglo-Malay, Kepitigala, Culloden, and other typical Eastern rubber plantations. Herr Dr. Prinzhorn, who was Dr. Willis's guide through the works, is quoted as objecting to rubber coming in blocks as at present. He thought that these blocks should not be more than 1 inch thick. Dr. Prinzhorn also called attention to the fact that many lots of plantation rubber on being opened were found to be covered with chips of wood, shavings, and sawdust, which come off the roughly-sawn inner sides of the packing boxes. These chips cannot be detached easily by hand, and their removal from the rubber involves considerable labor. The suggestion is made that the insides of packing boxes for rubber be planed smooth, and also that the boxes be lined with paper. It will be remembered that Dr. Prinzhorn about a year ago paid a long visit to the rubber planting regions of Ceylon and the Federated Malay States.

RUBBER AND TIMBER IN CHIAPAS (MEXICO).

THE Soconusco Estates Co., incorporated May 21, 1910, under the laws of California, with \$2,000,000 capital authorized, has for its purpose the development of a hard wood business in the district of Soconusco, Chiapas, Mexico; also the utilization of the

native rubber on the estates, and planting 5,000 acres to rubber. For carrying out the company's plans, an issue of first mortgage 6 per cent. improvement gold bonds, to the amount of \$2,000,000, is offered. The directors are R. B. Teefy, a banker; C. L. Flack and Thomas Hughes, of the lumber trade; H. J. Dike, a rubber expert; and J. H. Strait, mayor of Redlands, California. The offices of the company are in Los Angeles, California.

REORGANIZATION OF THE OBISPO COMPANY.

ANNOUNCEMENT is made of a readjustment of the affairs of The Obispo Rubber Plantation Co., organized in 1901 to establish a rubber plantation in the state of Oaxaca, Mexico. Rubber was planted on a large scale and the progress of the plantation was encouraging, but a year or two ago considerable damage was done by fire, after which the further course of the company was for awhile left in suspense. Shortly after the formation of the company a separate corporation was formed under the style The Republic Development Co., to develop the property and turn it over to the Obispo corporation when the trees reach a productive age. Early in the present year a committee was appointed by the board of directors to visit the company's plantation "San Silverio," in Mexico, consisting of the president, Mr. C. D. Ingell, and the secretary, Mr. Walter E. Holloway, for the purpose of reporting upon the condition of the property, and also a plan for its future conduct. They were met on the estate by Mr. James C. Harvey, supervisor, and his son, Mr. C. M. Harvey, superintendent. The report made by the committee was favorable as to the condition of the property, and the promise of a yield of rubber, and a profit from live stock. A contract has been entered upon whereby the further development work will be taken over by The Obispo Rubber Plantation Co., The Republic Development Co. retiring from further connection with the plantation. The offices of the Obispo company remain at No. 29 Broadway, New York. It is stated that 2,149 persons—stockholders and share contract holders—are in interest with the company.

A RUBBER PLANTATION NOT FOR SALE.

THE sixth annual inspection of the "Florida" plantation of the Wisconsin Rubber Co., in the interest of the shareholders, was made this year by Mr. George I. Talbot, chosen by the shareholders for the purpose. This plantation is known as one of the best in Mexico. The report of Mr. Talbot has been printed in pamphlet form, ending with the following note signed by R. B. Anderson, president:

"As will be remembered we last fall received an offer from a London syndicate of \$1,500,000 for the Wisconsin rubber plantation. This meant a profit of \$300,000. We refused to consider the offer. It will be gratifying to all interested to learn that on the 23d of April, 1910, a representative of a London firm came to Madison and made us an offer of \$2,400,000, or \$500 per share, for the Florida plantation. He was willing to put up \$10,000 as a guaranty. The syndicate demanded an immediate answer, but we were unable to entertain the proposition, as it would have been necessary to get the consent of every contract holder before accepting. Besides we believe the plantation as it stands today is worth much more than \$2,400,000. In a few years it ought to produce 1,000,000 pounds of rubber annually."

A SHAKESPEARE IN RUBBER.

THE public will welcome the appearance of Mr. W. Shakespeare as signatory for 1,000 shares of the Grand Central (Ceylon) Rubber Estates. Mr. Shakespeare's participation would have been all the more apt if his distinguished namesake had made Hamlet say "Ay, there's the rubber"—instead of the "rub."—*The Financial News (London)*.

Forest Rubber Exploitation.

RECENT DEVELOPMENT IN PERU.

MANY reports agree as to the recent development, on a larger scale than previously, of the rubber interests of Peru. Mention is made in recent South American journals of the completion of the mule road undertaken by the Inca Rubber Co.—an American corporation with headquarters at Bradford, Pennsylvania—in return for important franchises from the government. This road has now been declared open to trade generally, so that, in addition to its use by the Inca company, important preparations for increased traffic have been made by E. Brailard Brothers, a French concern established on the river Beni since 1882. They have engaged 1,500 mules, enabling them to carry toward the Beni 140 tons of rubber in a year, and to convey inland a corresponding volume of imported merchandise.

Recently another attempt has been made in London to float The Peruvian Rubber Co., Limited, the first prospectus of which was mentioned in THE INDIA RUBBER WORLD, December 1, 1907 (page 87). The basis of this company is an important concession from the Peruvian government to Miguel Forga & Sons, transferred to La Compania Gomera Villamayo, Limitada. As in the case of the Inca Rubber Co., the concession of the last named company provides for the building of roads to connect with streams which converge in the Madeira, this connecting with the Amazon and Pará.

An interesting statement in the prospectus of the Peruvian Rubber Co. is that "the well known Inca Rubber Co., of America, which owns large territory in the vicinity, has imported 500 Japanese, and the results have been quite satisfactory." And the Lima publication, *Peru To-day*, says that splendid progress is being made throughout the Madre de Dios region, adding: "The same may be said of the Tambopata region [where both the Inca and Peruvian companies have interests], where numerous Japanese have established themselves, with definite landed properties, which they devote especially to the cultivation of rice and cattle breeding."

NATIVE RUBBERS OF PORTUGUESE AFRICA.

THE rubber resources of Angola (Portuguese West Africa) are treated at length by the British consul, Mr. Mackie, in his report for 1908. It seems that the colonial government has employed expert botanists for stimulating interest in the collection of rubber and the forming of plantations, and also the introduction of agriculture. Over a half dozen latex yielding plants are recognized in the province, several of which have contributed to the already important production of rubber, including the grade known as "Benguella." Angola rubbers, as well known, are chiefly of the class known as "root rubber," or *caoutchoucs des herbes*.

Two of the more important species, according to this report, are the *Carpodinus gracilis* and the *Landolphia chylorrhiza*. These plants attain "but a meager growth above ground, but the subterranean development is important, producing horizontal trunks or *rhizomes* much branched and several feet in length, a few inches below the surface. It is generally these *rhizomes* that the natives collect for extracting the rubber. Only the biggest *rhizomes* are pulled out of the ground; the smaller ones and the branches remain in the earth. From these new plants spring up, and in from 8 to 10 years furnish *rhizomes* of sufficient thickness for extracting rubber. A native produces an average of 7 ounces of rubber a day without overworking himself."

In evidence of the tenacity of life of these plants it is mentioned that, although Portuguese stores have been in existence near Cassuango for some nine years in a populous center de-

voted to the rubber industry, these shrubs are still abundant all around—a circumstance, in the opinion of the botanist, that would seem to upset the theory that the rubber producing areas are being devastated by the native population. The consul is of the opinion that the employment of machinery might facilitate the production of rubber, but thus far little enterprise has been shown in this direction.

Regarding the "Ecanda" (*Raphionacme utilis*), first reported on by Professor Mello Geraldès [see THE INDIA RUBBER WORLD, July 1, 1907—page 200], the consul in Angola mentions the shipment of several tons of the bulbs of this plant to Great Britain, with the idea of extracting rubber from it there, but very little arrived in a fit condition, owing to the rotting that took place in transit. The consul adds: "It may nevertheless be concluded, from the continued interest manifested by the firm in this product, that the result had proved satisfactory."

LARGER DIVIDENDS OF A DUTCH COMPANY.

At the last annual meeting of Nieuwe Afrikanische Handels Vennootschap (Rotterdam, July 1), accounts were presented which permit the following comparative figures to be given. The company is the oldest trading on the Congo, having established a branch at Boma before the Belgians became established there. Lately the company have held 340 of the 2010 shares in the Cie. du Kasai (Kasai syndicate). Rubber has figured largely in the operations of the company. The dividends derived from the Kasai holdings, which form only part of the company's profits, have been (for fiscal years ending October 31):

1906	286,882.00 florins	[= \$115,326.56]
1907	121,992.45 florins	[= 49,040.96]
1908	67,446.64 florins	[= 27,113.55]
1909	132,965.18 florins	[= 53,452.00]

The yearly dividends declared by the N. A. H. V. and the rate were as follows:

1906	358,453.50 florins	(17 per cent.)
1907	168,684.00 florins	(8 per cent.)
1908	105,427.50 florins	(5 per cent.)
1909	231,940.50 florins	(11 per cent.)

The N. A. H. V. have become interested in the Cie. Française de l'Ouhamé et de la Nana, in the French Congo, the operations of which are now profitable. The proceeds of the Dutch company from this source during the year were 80,779.39 florins.

GOOD RESULTS OF THE MABIRA FOREST COMPANY.

THE directors of Mabira Forest (Uganda) Rubber Co., Limited, report very favorable results for the year 1909. The output of rubber was 82,424 pounds, against 35,007 pounds in 1908. During the business year the company sold 59,010 pounds, at the average price of 6s. 5¼d. per pound. On October 19 Mabira rubber fetched at the London auction 9s. 4¼d. [= \$2.28] per pound—a higher figure than the current rate for fine hard Pará. The net profit for 1909 amounted to £17,018, and after writing off expenditures incurred during the development stage there remained a balance of £10,107, out of which the directors recommended the distribution of a dividend of 10 per cent. The Mabira Forest company deal with native *Funtumia* trees, of which at the end of the year they had exposed and prepared for tapping 442,207 above 18 inches in girth. The company are gradually clearing out the intermediate forest trees and planting rubber. At the end of the year they had transplanted 289,449 *Funtumia* trees and 14,600 *Hevea*. [See THE INDIA RUBBER WORLD, March 1, 1910—page 202.]

A BOOK for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

News of the American Rubber Trade.

REPUBLIC RUBBER CO.—FACTORY EXTENSION.

THE Republic Rubber Co. (Youngstown, Ohio), continue the expansion of their plant by the erection of important buildings. They have recently awarded to the Forest City Steel and Iron Co. (Cleveland, Ohio,) a contract for a five story building, 80x200 feet, of fireproof construction, with sprinkler system throughout. The entire building will be occupied in the making of the company's "Staggard Tread" tires and fire hose, and will provide for the employment of 200 or 300 men. The demand for "Lanco" balata belting, made by the Republic company, has made necessary the erection of an additional building for this department, 250x90 feet, now under construction.

THE NEW FACTORY AT RACINE.

Good progress has been made in the construction of the factory of the recently organized Kelly-Racine Rubber Co. (Racine, Wisconsin). It was expected that the installation of machinery would be begun by September 1. The plant now under construction has a frontage of 298 feet, with two wings each extending back 251 feet, the building being three stories and basement. A building 150 x 50 feet has been provided for the electric power plant; no steam power will be used. The product is to be bicycle, motorcycle, and automobile tires, with the accessories usual in this branch.

THE NEW G & J TIRE CO.

[See THE INDIA RUBBER WORLD, August 1, 1910, page 388.]

THE change of name of the rubber companies at Indianapolis was effected, not by a new act of incorporation, but by a decree of the Marion county circuit court authorizing the Indianapolis Rubber Co. to take the style G & J Tire Co. of Indiana. The court decree was issued on June 6, and a certificate that such a decree had been filed with the secretary of state of Indiana was issued to the tire company on August 4.

PLEASING BUSINESS PROSPECTS.

GENERAL C. EDWARD MURRAY, who is at the head of two of the largest rubber industries of Trenton, is very optimistic over the business outlook. General Murray's plants make a sufficient variety of goods to give him a line on both the agricultural and building conditions, and he keeps in close personal touch with the different sections of the country.

"I do not take any stock in talk of panics, or business depressions, or hard times," said General Murray to a reporter for this paper. "In our factories, I think we are in a most excellent condition to judge the business outlook. We deal extensively in the manufacture of rubber carriage cloth that is used by the large factories in the West, and the demand for this material indicates that the farmers out there are prosperous, and that carriages are very much in demand.

"A good barometer of the building conditions can be found in our manufacture of insulated wire, where orders are most satisfactory. And as for the manufacture of automobile tires, every factory that makes them in the country is rushed with business. Our mail daily brings orders from all sections, and I cannot see anything ahead of us but good times."

General Murray, by the way, has purchased, for a summer home, what is regarded by many as the most handsome residence in Spring Lake.

CHEWING GUM PROFITS.

THE new chewing gum combination, Sen Sen-Chiclets, capitalized at \$4,000,000, is reported to be paying dividends at the rate of 6 per cent. per year, in addition to 6 per cent. on \$2,700,000 of bonds. The American Chicle Co., organized eleven years ago, is paying 6 per cent. yearly on \$3,000,000 of preferred

stock and 18 per cent. on \$6,000,000 of common stock, thus distributing an annual total of \$1,080,000. The sale of chewing gum is facilitated by the vast number of vending machines to be seen in stores and on the streets, which are used not only for chewing gum but for chocolate and many other commodities. The National Chocolate and Gum Co. has been incorporated under the laws of New Jersey, with \$500,000 capital, to control eleven patents on vending machines and to manufacture and license the use of such machines in the United States and abroad, and also to supply gum and other "fillers" for the machines manufactured for the company under special arrangement. If all the promises of the prospectus of the vending machine company should be realized, their business seems likely to become the most profitable on earth.

MANY GOODRICH COMPANIES.

THE B. F. Goodrich Co. (Akron, Ohio), in keeping with the modern practice of incorporating in different States in order to benefit from the most liberal provision of the laws of each, now have a charter in three States besides Ohio. The list includes The B. F. Goodrich Co. of New York, The B. F. Goodrich Co. of Michigan and The B. F. Goodrich Co. of Texas. Mention may also be made of The B. F. Goodrich Co., Limited, in England.

A report from Paris is that a concern to be known as the Société Française B. F. Goodrich, being a branch of the American house of the same name, is in course of organization.

TRADE NEWS NOTES.

THE Manufacturers' Rubber Co. (Philadelphia) have declared the regular quarterly dividend of 1½ per cent. on the preferred stock, payable September 1.

The board of trade of Cadillac, Michigan, have been considering a proposition for adding a \$100,000 rubber factory to the city's industry.

The moving picture advertising program of the B. F. Goodrich Co., "From Tree To Tree," mentioned in these pages already, continues to meet an interesting reception on the part of the public. The pictures were being shown recently in Michigan towns. Mr. F. M. Tillisch, of the Akron office, continues his lecture course in connection with the pictures.

Mr. Edward H. Broadwell, long connected with the Fisk Rubber Co. (Chicopee Falls, Massachusetts), and for five years vice president of that company, has resigned to take charge of the selling department of the Hudson Motor Car Co. (Detroit), of which he has been elected second vice president, to date from September 1.

Schedules in bankruptcy of Henry F. Mayper, manufacturer of silk rubber raincoats, No. 40 West Twenty-second street, New York, show liabilities of \$22,825; the assets are not stated. A rubber proofing company is mentioned as a creditor for \$3,785.

A representative of the New York Royal Rubber Co. was reported recently to be stopping at Terryville, near Middletown, Connecticut, looking for a location for a rubber factory.

The directors of the Boston Woven Hose and Rubber Co. have declared a quarterly dividend of \$2 per share on the common stock, payable September 15, 1910, to stockholders of record September 6.

"The Commercial Geography of Rubber" is the title of a neat booklet compiled by Mr. Charles B. Whittelsey, superintendent of the Hartford Rubber Works Co., and distributed by this company to their customers as likely to be of interest, particularly to the users of their tires.

NEW INCORPORATIONS.

ARKAY Rubber Co., June 30, 1910, under the laws of New York; capital, \$25,000. Incorporators: George J. Knies, Arthur J. Knies, and Edward F. Rolle, all of New York. This business, founded in 1900, and located at No. 111 Chambers street, New York, is devoted to the sale of mechanical rubber goods, and particularly of elastic bands.

The Loewenthal Co., July 13, 1910, under the laws of New York; capital, \$1,000,000. Incorporators: Herman Muehlstein (No. 481 Washington street), Louis S. Levy and Stephen S. Rosenthal (No. 2 Rector street), all of New York city. Further details appeared in THE INDIA RUBBER WORLD, August 1 (page 401).

A & A Rubber Co., February 7, 1910, under the laws of Massachusetts; authorized capital, \$16,000. Incorporators: Calvert B. Archer, Milford, Mass.; Leon Aronson, No. 572 Warren street, Boston; John S. Slater, No. 18 Tremont street, Boston; and Isidor Fox, Barristers' Hall, Boston. Further details were given in the last INDIA RUBBER WORLD (page 401).

Webster Felt and Rubber Co., June 30, 1910, under the laws of Massachusetts; authorized capital, \$200,000, par value, \$10 each share. Incorporators: Henry C. Richardson, Haverhill, Mass.; Arthur H. Racicot, Joseph N. Roy, and Alexander N. Racicot, Webster, Mass. The Mr. Richardson named here is the inventor of a felt and rubber boot which has attracted attention in the trade at various times, though it has not been manufactured to an important extent. At one time it was proposed to take up its manufacture in Canada, in connection with which THE INDIA RUBBER WORLD treated the invention, in the issue of February 1, 1908 (page 151).

Guarantee Rubber Tire Co., July 16, 1910, under the laws of New Jersey; capital, \$10,000. Incorporators: E. J. Forhan, G. F. Martin, and H. P. Jones, all of No. 154 Nassau street, New York.

Mayflower Rubber Works Co., June 30, 1910, under the laws of Massachusetts; authorized capital, \$10,000. Incorporators: Frank M. Sawtelle, Malden, Mass.; Robert J. Cram, No. 46 Mt. Vernon street, Boston; and Atherton N. Hunt, Braintree, Mass. Location: Braintree, Mass. Mr. Cram is president of the company and Mr. Hunt treasurer.

The Sillocks-Miller Co., July 1, 1910, under the laws of New Jersey; authorized capital, \$100,000. Incorporators: Warren S. Sillocks, Horace E. Miller, Henry Sillocks, all of No. 44 St. Francis street, Newark, N. J. This company has taken over from The Celluloid Co. its "Texoderm" department. The manufacture will be carried on of texoderm, which has become recognized as a high grade of artificial leather, and also of certain specialties in celluloid. The president of the company, Mr. W. S. Sillocks, is a director of The Celluloid Co., and both he and the vice-president, Mr. H. E. Miller, have been connected with that company from the beginning.

Electrose Manufacturing Co., June 17, 1910, under the laws of New York; capital, \$100,000. Incorporators: Louis Steinberger, No. 335 Madison avenue, Brooklyn; John H. Poggenburg, No. 744 Beck street, New York; and Félix Steinberger, Bradford, Pennsylvania. This succeeds to the business carried on heretofore by the Electrose Manufacturing Co., incorporated under the laws of Illinois. The product Electrose, a substitute for hard rubber used for electrical purposes, was invented by Louis Steinberger. The factory is at No. 127 North 10th street, Brooklyn, New York.

Schwab-Chubb Tire Protector Co., June 13, 1910, under the laws of New York; capital, \$50,000. Incorporators: Abraham Schwab, and Frederick T. Barry, No. 641 Madison avenue; Nathan Schwab, No. 6 East Fourteenth street—all of New York City.

Hercules Suspension Tire Co., June 14, 1910, under the laws of New York; capital, \$50,000. Incorporators: George E. Armstrong, No. 1 West One Hundred and Fourth street; L. G.

Billings, Jr., No. 115 Broadway; and Darius E. Peck, No. 30 West Forty-fourth street—all of New York.

International Automobile League Tire and Rubber Co., July 15, 1910, under the laws of New York; capital, \$1,000,000. Incorporators: Alfred C. Bidwell (No. 234 North Division street); William Preiss (No. 160 Franklin street); and Charles H. Bowe (No. 58 West Genesee street), all of Buffalo, New York.

A letter to THE INDIA RUBBER WORLD states that this company has been formed for the purpose of building a factory for making automobile tires for its shareholders, and for the members of the International Automobile League, which is stated to have 40,000 members. The idea is held out that automobile tires are unduly expensive, and that by reason of the co-operative scheme outlined users of tires may cover their requirements more economically than at present. The letter here quoted is typewritten, on a piece of paper 6 x 9 inches in size, without a printed heading, and signed simply "International Automobile League Tire & Rubber Company," without the name of any individual.

Bartica Co., May 27, 1910, under the laws of Maine; authorized capital, \$2,000,000. Incorporators: T. L. Croteau, Albert F. Jones, B. M. Maxwell, Clarence G. Trott, J. R. Griffin, L. H. Palmer, and C. L. Doane, all of Portland, Maine. To engage in cultivation of rubber and other crops in British Guiana.

CHARLES GOODYEAR ON BROADWAY.

A REPLICA of the bronze bust of Charles Goodyear recently placed in the railway station at Naugatuck, Connecticut, by Colonel Samuel P. Colt [see THE INDIA RUBBER WORLD, August 1, 1910—page 387] now stands in the directors' room of the United States Rubber Co. (New York), of which company Colonel Colt is president.

TRADE NEWS NOTES.

THE Consumers' Automobile Tire and Tube Co. have established a store at No. 1515 Michigan avenue, Chicago, with a view to carrying a full stock of tires and tire accessories of leading makes. The manager is Mr. J. J. Casey.

Mr. F. H. von Boemle, at No. 35 Warren street, New York, is representing the Cleveland Rubber Works of the Mechanical Rubber Co. (Cleveland, Ohio) for a number of their specialties.

The demand for the "Staggard Tread" tires, made by the Republic Rubber Co. (Youngstown, Ohio), is said to have doubled within a year, and the company are preparing for a still larger business in 1911.

Morgan & Wright (Detroit, Michigan), have built for display purposes one of their "Nobby Tread" pneumatic tires, the dimensions of which are 96 x 12 inches. An ordinary sized man can stand upright inside the rim. The only larger tire on record was one 11 feet in diameter which the Boston Woven Hose and Rubber Co. built in 1897. This was a much simpler piece of work, however, being a single tube.

The Progressive Co. (Chicago), have issued a circular to dealers in their "Knickerbocker" spray brushes, asking their co-operation in maintaining prices. They state that the retail price was fixed and restricted by them, as the owners of four United States patents under which the brushes are manufactured.

The Vulcalose Co. (No. 5254 West Madison street, Chicago), report that they are preparing to market a new product, which they term "Vulcalose." This is described as being similar to vulcanized fiber, possessing the advantages of not warping, and being waterproof. It is composed of plastic cellulose and rubber vulcanized together.

Mr. Charles A. Emerson, who has been the purchasing agent of the United States Rubber Co. ever since the company was organized, in 1892, and who for a year or two has also acted as purchasing agent of the Rubber Goods Manufacturing Co., lately has been overcome by the temptation to run a touring car, in which he has become very efficient.

TRADE NEWS NOTES.

ON the twenty-fifth anniversary of the organization of the Apsley Rubber Co. (Hudson, Massachusetts), every employé at the factory was presented with a handsome silver mounted leather pocketbook, containing a small sum of money. The pocketbooks were inscribed "Best Wishes. Apsley Rubber Co. 1885-1910." The presentation was made in person by the president of the company, the Hon. L. D. Apsley, who had just returned from a vacation in Europe.

The Peerless Rubber Manufacturing Company (Goodell Rubber Company, distributors), have recently removed from No. 704 Arch street, Philadelphia, to more commodious quarters at No. 19 North Seventh street, in that city.

A fire in Boston on August 17 destroyed rubber goods in the store rooms of the Standard Tire and Rubber Co., No. 102 Portland street, of the estimated value of about \$10,000.

The St. Louis Rubber Cement Co. report that most of the large jobbers in bicycle, automobile and findings cements are contracting for 1911 goods now. It is very early, but the jobbers appear anxious to contract before another possible advance in manufactured goods.

PERSONAL MENTION.

MR. HERMAN REIMERS, formerly of the crude rubber trade in New York and now a member of Heilbut, Symons & Co., rubber merchants in London, is chairman of the board of The Anglo-French Mercantile and Finance Corporation, Limited, registered recently in London, with an authorized capital of £1,000,000, for the purpose of financing or buying or selling or amalgamating suitable estates, and particularly rubber plantations. The board includes also some of the most prominent British investors in rubber planting.

Dr. David Spence, who for some time past has been connected with the Diamond Rubber Co. (Akron, Ohio), recently enjoyed a brief holiday at his home in England.

THE RUBBER TRADE AT AKRON.

BY A RESIDENT CORRESPONDENT.

AT the annual meeting of the shareholders of the Firestone Tire and Rubber Co. (Akron, Ohio), on August 24 the directors were reelected, as follows: H. S. Firestone, Will Christy, R. J. Firestone, A. C. Miller, and L. E. Sisler. The election of officers resulted:

President—H. S. FIRESTONE.
Vice President—WILL CHRISTY.
Secretary—S. G. CARRHUFF.
Treasurer—J. G. ROBERTSON.

It was stated after the meeting that the business of the company during the year had exceeded expectations, especially in the manufacture of their new quick detachable demountable rims. The shareholders were told that the new \$1,000,000 factory, which has been under construction since early this year, is expected to be ready for occupancy by March 1 next. The new plant, located some distance south of their present quarters, consists of a long narrow and main building with four wings on each side, so planned that more room can be had when needed by extending the wings.

THE annual picnic of the employés of the B. F. Goodrich Co. American Hard Rubber Co., and Alkali Rubber Co., held on Saturday, August 6, at Silver Lake Park, near Akron, was attended by 18,000 persons. The companies gave all their employés tickets entitling them to transportation on special trains, and many of the privileges of the park. A baseball team captained by H. K. Raymond, tire department manager in the Goodrich plant, was defeated by a team headed by E. C. Shaw, general manager of works.

THE population of Akron, by the last United States census, is given at 69,067, against 42,723 ten years ago—the increase being about 61 per cent. The increase is credited principally to

the growth of the rubber industry. It is estimated that one-fourth of the population of the city is employed in the various rubber factories. The combined capitalization of the rubber factories of Akron is now calculated to be \$42,000,000.

THE capital of the Miller Rubber Co. has been increased from \$250,000 to \$500,000. Within the past year the plant has been greatly enlarged, and plans are being made for still more extensive facilities, which the officers say will permit of the doubling of the output next year. The company started twelve years ago with a working capital, it is reported, of only \$300.

THE B. F. Goodrich Co. will shortly finish another reinforced concrete and brick building, three stories high, with a frontage of 185½ feet, and extending back 260 feet, so planned as admit of two floors being added later. The ground floor will accommodate the maintenance department and the garage for tire testing cars, the company's trucks, and the automobiles owned by officials and employés. The second floor will house the machine shop, where the finer grades of molds will be made, and the carpenter shop and painting shop. The third floor will be devoted to rubber manufacturing.

THE annual outings of the Diamond Rubber Co., the Goodyear Tire and Rubber Co., and the Firestone Tire and Rubber Co. were held in June last.

MR. HARVEY S. FIRESTONE, president of the Firestone Tire and Rubber Co., left during the middle of August for an absence of a month in Europe.

MR. H. E. RIKER, of Alliance, Ohio, formerly connected with the rubber trade in Akron, has been appointed auditor for the Firestone Tire and Rubber Co.

AT a meeting of shareholders of The B. F. Goodrich Co., held on August 24, the proposals of the directors for increasing the capital from \$10,000,000 to \$20,000,000 [see THE INDIA RUBBER WORLD, August 1, 1910—page 401] were agreed to. On that day the asking price for Goodrich stock was \$285 for shares of \$100.

A MEETING of officers, branch managers, and salesmen of the Buckeye Rubber Co. was held during the week beginning August 22. The officers of the company, it is understood, are considering plans for the enlargement of their plant.

MR. E. C. TIBBITTS, advertising manager for The B. F. Goodrich Co., is so firm a believer in the benefits of such events as the Glidden tour in developing the tire business that he hopes that these tours will not be discontinued.

THE employés of the Goodyear Tire and Rubber Co. who have been with the company for ten years have been granted a 10 per cent. increase in wages, in accordance with the custom of the concern.

THE Swinehart Tire and Rubber Co. have established two new agencies—one each in St. Louis and Kansas City, Missouri.

THE Stein Double Cushion Tire Co. have made tentative plans for a new factory building, for which ground probably will be broken early in the spring.

WILLIAM C. STATE, mechanical engineer of the Goodyear Tire and Rubber Co., narrowly escaped falling 250 feet through a new smokestack the company has just built. The bucket in which he was riding tipped, and the man saved himself by hanging to the cable.

Feeders of the Bordeaux Rubber Market.

THE importation of rubber at Bordeaux during 1909 showed a marked increase over the year preceding, and was considerably more than in 1906, the year with the largest figures in the past. The imports for eleven years have been:

1899.....kilos	175,580	1905.....kilos	1,330,480
1900.....	239,532	1906.....	1,716,004
1901.....	235,380	1907.....	1,516,420
1902.....	678,000	1908.....	1,078,320
1903.....	1,113,000	1909.....	1,987,565
1904.....	1,182,703		

A review of the Bordeaux market, by the brokers Félix Faucher and E. Chaumel, embodies the following comments on the sources of the rubber imported there, and the conditions of its production:

"Importations during the year 1909 amounted to 1,987,565 kilograms, against 1,078,320 kilograms in 1908. The reason for this increase is to be found in two very distinct factors: (1) the advance in prices for rubber in Europe, which made it possible to pay the natives more remunerative wages, which acted as an inducement for them to gather this product in large quantities; and (2) the period of rest allowed the rubber producing *lianes* (vines) during the year 1908, when the gathering of the crop was practically abandoned. This rest appears to have resulted in an increased production of late in 1909.

"This latter fact leads us to the conclusion that the rigid enforcement of the prohibition of rubber gathering during the winter season in all the centers of production in our French West African colonies would undoubtedly have the two fold result of increasing the production, while at the same time improving the quality of the product.

QUALITY.

"There is still room for certain improvements in quality, for we have had occasion to notice that there is considerable unevenness in the quality of arrivals. We give below the particulars we have been able to gather during the season in regard to product shipped from various places of production.

"Soudan.—Although arrivals, taken as a whole, are clean, sound, and generally in good condition, we found, nevertheless, fresh lots containing a soft kind of rubber, from which water oozes out under the pressure of the hand, exactly as it does when squeezing a sponge.

"The lots in question came from the Kankan region, where they must have been gathered toward the end of the rainy season. Traders in that territory complain, moreover, that the natives boil their rubber before bringing it to market, in order to saturate it with an excess of water. This fraud denatures the rubber and makes it liable to increased oxidation.

"We therefore call the attention of the government to this species of fraud, in order that preventive measures may be taken at once and strict watch be kept over the natives, so as to compel them to deliver their rubber dry and in good condition, as long as it appears impossible to comply with the demand to have them prepare it in thin sheets and strips. We furthermore urge the traders to ship their rubber as nearly dry as possible, and to take good care of it before shipment.

"Conakry.—In the beginning of the year the rubber shipped from this territory was of very poor quality, containing a less amount of red rubber, but on the other hand, an enormous proportion of earthy lumps. In consequence of the complaints made by the trade, the lieutenant governor of Guinea took strenuous measures in order to put an end to a state of affairs which was liable seriously to injure the industrial and financial interests of the colony. The result of these measures soon became apparent,

and we very quickly had occasion to observe that there was a noticeable decrease in the amount of earthy rubber.

"Red rubber remains, nevertheless, very scarce. We attribute this scarcity to the rapid advance of the railway in the direction of centers of production, which makes it possible to transport the rubber quickly to the shipping port. The rubber has not, therefore, sufficient time to take on the beautiful red color which it formerly acquired during the long journey of the caravans which carried it to Conakry.

"During July-September exports from Conakry were very large, notwithstanding the announced prohibition of gathering rubber during these three months. The quality of the rubber, in fact, leaves a great deal to be desired, the rubber being whitish, soft and watery. The public interests therefore demand that the gathering of rubber during the rainy season be prohibited strictly in Guinea.

"We would urgently advise the exporters of Conakry rubber to separate carefully the Conakry grade from the 'Soudan niggers' product, a constantly increasing amount of which is coming in at the terminal point of the railway. The mixture of these two grades in the exported lots is the cause of everlasting difficulties and should be carefully avoided.

"Ivory Coast.—The grades imported from this territory are still of the average quality of the crops of previous years, and as numerous and varied as in the past.

"The attempt to replace the 'lumps,' 'cakes,' 'twists,' and 'niggers' by one single method of preparation—viz., in the form of translucent cakes—could not be carried out, in consequence of the obstacles encountered by the government, the chief difficulties being the diversity between the species of rubber producing plants found in the Ivory Coast colony, and the low intelligence of the gatherers.

"According to information sent us by the lieutenant governor, all possible measures have, nevertheless, been taken in order to succeed as quickly and by as practical a method as possible, in improving the grades of rubber produced in that territory.

"Two schools for instructors were opened under the direction of technical agents—viz., one in Assikasso, in the eastern part of the colony, and one in Bouaké for the western district. The natives who were instructed in these schools have become salaried agents and were made subject to the order of the district commanders, so as to have them spread among the inhabitants of the village the knowledge of the methods for the satisfactory preparation of rubber, as recommended by the government agents. The work of these native agents was at the same time combined with that of the district postmasters, who have received special instructions to make the preparation of rubber a subject of their conversations with the natives, on all the trips they make.

"The carrying out of a program so systematically drawn up can not fail to produce excellent results in the near future. It will be much more easy, however, to obtain such results if the traders, on their part, will support these efforts by adopting an equitable method in making their purchases.

PRODUCTION.

"This important factor has been made an object of careful attention. The areas planted with *lianes* and trees are being extended everywhere in a systematic manner. There are, moreover, areas in the forest region of the Ivory Coast which have not as yet been worked, and the production may be still further increased by a supply of *Funtumia* rubber, according to the information furnished by the lieutenant governor.

"From observations made by Mons. A. Chevalier and Captain Schiffer during their journey across the Ivory Coast, it appears

that the *Funtumia* will very easily multiply naturally, and without requiring any care, in consequence of the lightness of the seeds and of the rapid growth of this species.

"By preserving these new groves until they have reached the age of maturity new sources of production will be made available. The Pará (*Hevea*) trees, moreover, which were planted in 1898, have prospered so well that the local government has now undertaken to plant a large area of this species at the Agboville station, on the section of the railway already opened to traffic. This area is being planted for the purpose of encouraging colonization and of providing a sufficiently extensive nursery from which the planters can obtain supplies.

"With the *Hevea* and the *Funtumia*, which can prosper side by side on the Ivory Coast, this territory may become, according to the opinion expressed by the lieutenant governor, in view of its exceptionally favorable location, one of the principal centers for the cultivation of rubber producing species."

The imports at Bordeaux by grades for the past two years have been as follows:

	1908.	1909.
Soudan sorts	267,785	722,035
Conakry niggers	408,245	651,200
Gambia or Cassamance	77,065	152,400
Lahou niggers	85,770	116,895
Lahou cakes (Baoulé)	11,790	32,470
Bassam lumps	78,960	33,500
Bassam niggers	5,590	13,335
Bassam cakes	1,810	3,230
Congo Sangha	7,250
Java and Sumatra	175	150
Madagascar	5,660	105,455
Central America	50,895	7,455
New Caledonia	9,150	1,660
Tonkin	5,700	2,000
Rufisque	2,580	985
Manicoba	54,695	143,435
Pará	4,950
Balata	250	1,360
Total	1,078,320	1,987,565

Madagascar rubber has figured to a specially interesting degree in the Bordeaux market, both as regards the gain in output, and in the advance in price, which has been held more steadily for this grade, perhaps, than for any other. Madagascar Majunga rubber in January, 1909, ranged from 6 to 8 francs per kilo; prices in December were 9 to 10 francs. Similarly, Madagascar Tamatave rubber rose from 8@9.25 francs to 10.85@11.10 francs per kilogram.

THE HAVRE RUBBER MARKET.

ARRIVALS during 1909 at Havre were larger than in 1908, though still below the record of two former years. The arrivals for four years past may be analyzed thus:

FROM—	1906.	1907.	1908.	1909.
French Congo.....Kilos	314,025	892,655	884,733	840,324
Other sources (except Pará) ..	339,847	238,321	130,000	371,514
Pará	3,738,055	3,339,147	2,483,444	2,569,338
Total	4,391,927	4,464,123	3,498,177	3,781,176

We quote from the annual review of Jean Roederer, broker at Havre: The efforts of importers have been directed to an improvement in the quality. As for the red varieties, their quality and condition leave nothing to be desired. The black varieties, which used to come often in a humid or sticky condition, have been very much improved, and were very much sought after, which accounts for the great rise in the Ekela and the Haute-Sangha. The former sold 51 per cent. higher at the end than at the beginning of the year, and the latter 92 per cent. higher. The monthly sales have been largely attended and the Congo lots induced lively bidding. At the end of the year the Pará prices were a little weak, leading to a slight decline in the Congo lots. Nevertheless, the demand continues good and everything points to high prices during the next few coming months.

TOTAL IMPORTS OF RUBBER AT HAVRE.

	Kilos.		Kilos.
1896.....	1,648,000	1903.....	1,862,000
1897.....	1,814,000	1904.....	2,188,000
1898.....	2,138,000	1905.....	3,291,000
1899.....	1,856,000	1906.....	4,391,927
1900.....	2,350,000	1907.....	4,404,123
1901.....	2,241,000	1908.....	3,498,177
1902.....	1,948,000	1909.....	3,781,176

THE CONGO RUBBER MOVEMENT.

EXPORTS of rubber from the Congo Free State (now the Belgian Congo), for the two years stated, are officially given as follows:

	1905.	1908.
Total rubber exports	6,108,421	5,947,223
Product of the State	4,861,767	4,559,926

VALUES.

Total rubber exports	54,975,789	40,143,755
Product of the State	43,755,903	30,779,500

Exports include rubber in transit through the Free State, from the French Congo and from neighboring German and Portuguese territory.

RUBBER EXPORTS FROM KAMERUN (WEST AFRICA).

YEARS.	Kilos.	Marks.
1900	547,348	2,058,526
1901	518,638	1,787,062
1902	488,517	1,624,336
1903	701,095	2,247,085
1904	949,546	3,625,328
1905	1,034,204	4,071,016
1906	1,151,009	4,676,629
1907	1,492,811	7,641,124
1908	1,214,320	4,779,740

EXPORTS FROM GOLD COAST COLONY (BRITISH WEST AFRICA).

YEARS.	Pounds.	Value.
1899	5,572,554	£555,731
1900	3,452,440	328,156
1901	1,520,009	104,030
1902	1,509,974	88,602
1903	2,258,981	196,500
1904	4,013,837	360,644
1905	3,633,106	323,774
1906	3,649,668	334,504
1907	3,549,548	333,120
1908	1,773,248	168,143

GUTTA-PERCHA FROM THE PHILIPPINES.

THE bureau of agriculture at Manila publishes a statement of exports of gutta-percha from the province of Jolo, for the first eight months of 1909, the figures aggregating 27,632 kilograms [=607,904 pounds], of the declared value of \$26,088.90.

AMERICAN VIEWS VIA CEYLON.

THE drop in rubber prices in London on May 4 was telegraphed the same day to Ceylon, and in connection with reporting the news *The Times of Ceylon* says:

"Told of the sudden drop in rubber today, the head of a Colombo firm of buyers, with an extensive business connection with American manufacturers, informed a *Times of Ceylon* representative that he was not in the least surprised. 'Everyone knows,' he remarked, 'that prices have been much too high. I think American dealers are merely "holding" off temporarily, with the view of getting the prices down. America has shown no indication that she wants to buy rubber, but I think she will do so later. I know for a fact that a certain American firm of manufacturers sold in London a portion of their hard fine Pará purchase at top figure, finding that they could make more money by selling the raw rubber than by turning it into the manufactured article.'

"The same gentleman said he was not aware that American manufacturers were 'living from hand to mouth' as stated in Reuter's wire."

ADDITIONAL TRADE NEWS.

GOODYEAR TIRE AND RUBBER INCREASE.

THE directors of the Goodyear Tire and Rubber Co. (Akron, Ohio), have filed with the secretary of state of Ohio a certificate of increase of capital from \$2,000,000 to \$6,000,000. It is stated by Mr. Frank A. Seiberling, president of the company, that their business was twice as large in volume during the last business year as in the preceding year. The company, recently completed an additional six story building 200 x 60 feet, and another is under way 400 x 50 feet. They expect to have a reclaiming plant in operation in the autumn.

AKRON'S LATEST RUBBER COMPANY.

THE Portage Rubber Co., organized by business men of Akron, Ohio, with an authorized capitalization of \$1,000,000, to manufacture solid and pneumatic tires and a general line of rubber goods, are offering 5,000 shares of cumulative 7 per cent. shares. The capital stock is one-half each in preferred and ordinary shares. The directors of the new company are Will Christy, John W. Miller, James Christy, W. S. Long, Dayton A. Doyle, John Kerch, Arthur S. Mottinger—all of Akron—and Hayward H. Kendall, of Cleveland, Ohio. The new company plan to take over the plant and business of the Union Rubber Co., of Barberton, Ohio, with a view to doubling soon the reclaiming plant of the latter.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for five weeks, ending August 27:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,344,000.]

Last Dividend, April 30, 1900—1%.

Week July 30	Sales 5,695 shares	High 34½	Low 27
Week August 6	Sales 500 shares	High 33¼	Low 32½
Week August 13	Sales 3,850 shares	High 35½	Low 33
Week August 20	Sales 3,400 shares	High 35½	Low 34¾
Week August 27	Sales 1,800 shares	High 34½	Low 33¾

For the year—High, 52½, Jan. 3; Low, 27, July 30.

Last year—High, 57½; Low, 27.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, July 30, 1910—2½%.

Week July 30	Sales 2,864 shares	High 105¼	Low 99
Week August 6	Sales 2,110 shares	High 105¼	Low 104
Week August 13	Sales 1,010 shares	High 108	Low 104¾
Week August 20	Sales 1,005 shares	High 109	Low 108½
Week August 27	Sales 300 shares	High 108	Low 107½

For the year—High, 116½, Jan. 10; Low, 99, July 30.

Last year—High, —; Low, —.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, July 30, 1910—1½%.

Week July 30	Sales 1,110 shares	High 69	Low 59½
Week August 6	Sales 400 shares	High 67	Low 65½
Week August 13	Sales 200 shares	High 67½	Low 67
Week August 20	Sales 300 shares	High 70	Low 69
Week August 27	Sales 100 shares	High 68¾	Low 68¾

For the year—High, 84, Jan. 3; Low, 59½, July 30.

Last year—High, 89½; Low, 67½.

SIX PER CENT. TRUST GOLD BONDS, \$19,500,000.

Week July 30	Sales 31 bonds	High 102½	Low 101¾
Week August 6	Sales 19 bonds	High 102½	Low 101¾
Week August 13	Sales 19 bonds	High 102½	Low 102
Week August 20	Sales 34 bonds	High 102½	Low 102¾
Week August 27	Sales 12 bonds	High 102½	Low 102¾

For the year—High, 104½, Jan. 15; Low, 102, July 9.

Last year—High, 106; Low, 102½.

"CAMP GOODRICH."

THOSE who visit "Camp Goodrich" on their wonderfully fertile tropical island, are indeed fortunate. The area of the enchanted land is not a matter of record, but its products are all that heart could desire. To describe it without the singularly attractive drawing, or was it a photograph, sent out by the owners is difficult. Fruits and flowers, orchids and orchestras are all suggested. It is a land flowing with milk and honey, beer and pretzels,

jujubes and juleps. An aeroplane-boat-automobile, fitted with Goodrich tires takes one there. [See the latest "Goodrich Rubber Man's Vacation."]

A FEW ITEMS.

OFFICIAL notice is given, under date of July 7, of the registration of the commercial firm of B. Antunes & Ca., in succession of the firm of the same name in liquidation. This house long has been important among the *aviadores* at Pará, and has engaged also in exporting rubber.

Commercial circles in Pará and throughout north Brazil are to be congratulated upon the appearance of such a journal as *O Commercio Norte-Brasileiro*, due to the enterprise of Mr. Miguel P. Shelley, who for many years has been active in the life of Pará, for awhile in commercial affairs and later in journalism. He has an extensive acquaintance in the Amazon region, including a wide knowledge of rubber trade conditions, and it is apparent from the initial issue of this journal that no small proportion of its space is to be devoted to statistics of the rubber market and comments on the conditions of the same.

Mr. G. Edward Habich, well known to the rubber trade in New England, who handles the "Cole 30" automobile, shipped five of those excellent cars to Pará last month.

The amount of rubber transported by the lines of the Mog-Yana Railway and Navigation Co. for the fiscal year 1909 was 115,565 kilograms, against 82,239 in 1908. This road operates in the Brazilian states of Minas Geraes and Sao Paulo.

The crude rubber market of Amsterdam is gradually assuming proportions of importance. There have long been imports there of crude rubber, and to these are being added increasing amounts of plantation rubber. Not a few growing companies have been organized in Holland, and these are expected soon to become important producers.

There are said to be in Hawaii Territory 300 investors in La Zacualpa Rubber Plantation Co. and the allied enterprises in Mexico, representing an investment of approximately \$1,000,000.

It is stated that through the efforts of Mr. A. W. Smith, formerly of the Roberts, Johnston and Rand Shoe Co., of St. Louis, several gentlemen in that city have obtained title to 88,140 acres of land at Tomellin, Oaxaca, Mexico. On part of this they expect to develop mining interests, while on the rest they expect to work rubber and develop grazing. A party of those interested plan going to Mexico this month to visit the property.

The question of requiring public hackmen to equip their horses with rubber pads was recently under consideration by the city council of San Antonio, Texas. The object was the better protection of the asphalt streets.

AFFAIRS OF KEMPSTALL TYRE.

At the third annual meeting of shareholders of the Kempshall Tyre Co. of Europe, Limited (London: August 3) it was stated that although the production of tires was the largest in the history of the company, the sales having been very encouraging, there was no profit for the year. This was attributed to the high cost of rubber, which prevailed during part of the year, and the expensive advertising campaign which has been kept up as the means of introducing the tires in every country where motor cars are used. The Kempshall tires are manufactured at the plant of the Messrs. Macintosh, in Manchester.

DERMATINE PROFITS.

At the annual meeting of shareholders of Dermatine Co., Limited (London: August 17), the reports for the twelve months ended June 30 showed a net profit of £2,627 12s. 3d. The usual preference dividend was paid of 7 per cent., and a dividend of 7½ per cent. on ordinary shares. The directors consider the result of the year's trading to be quite satisfactory, in view of the abnormal cost of raw materials.

Review of the Crude Rubber Market.

THE principal rubber auctions in Europe during the latter part of August realized uniformly lower prices than in the preceding auctions in the same markets. The effect of these lower prices has been reflected in every center of the rubber trade. By the way, these rubber auctions, at which are represented all the important rubber buying interests in the world, have a very much more important influence in fixing prices of this commodity than is generally appreciated in America, where the system of disposing of raw imports by auction has never had a standing. The European auctions referred to occurred too near the date of the printing of this paper to allow for any extended comment on causes of the decline. As usual in Europe, however, the lower prices are attributed to lessened buying in America. Similarly, when prices go up, it is said to be because America is bidding for all the rubber in right.

Suffice to say, prices are lower at this date than for many months; in fact, there is no \$2 rubber of any grade in the market. When prices advance again, the fact will be recorded in these columns—it may be with or without comment.

The Editor, on another page, has something to say about rubber prices, and there are statistics scattered all over the paper that are worth considering in connection with rubber prices. It is worth while to add here that the Para receipts for July were larger than in the first month of any other crop season.

Following are the quotations at New York for Pará grades, one year ago, one month ago, and August 30, the current date:

PARA.	Sept. 1, '09.	Aug. 1, '10.	Aug. 30.
Islands, fine, new	@168	208@210	179@180
Islands, fine, old	@175	210@212	none here
Upriver, fine, new	@190	215@...	196@197
Upriver, fine, old	none here	218@...	198@199
Islands, coarse, new	@ 64	95@...	94@ 95
Islands, coarse, old	@ 75	none here	none here
Upriver, coarse, new	@113	147@...	142@143
Upriver, coarse, old	none here	none here	none here
Cemetá	@ 83	110@...	95@ 96
Caucho (Peruvian), ball	@105	147@...	135@136
Caucho (Peruvian), sheet	@ 86	none here	none here

PLANTATION PARA.

Fine smoked sheet	@...	@209	190@191
Fine pale crepe	@...	@202	174@175
Fine sheets and biscuits	@...	@196	172@173

CENTRALS.

Esmeralda	@ 95	130@...	118@119
Guayaquil, strip	@ 78	110@...	none here
Nicaragua, scrap	@ 95	128@...	116@117
Panama	@ 83	90@...	none here
Mexican, scrap	@ 95	127@...	115@116
Mexican slab	@ 80	none here	none here
Mangabeira, sheet	@ 66	none here	none here
Guayule	@ 45	80@...	72@ 73

AFRICAN.

Lopori, ball, prime	@120	175@...	162@163
Lopori, strip, prime	@118	170@...	170@...
Aruwimi	@106	160@...	160@...
Upper Congo, ball, red	@120	none here	158@159
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality	@123	167@...	155@156
Massai, red	@123	167@...	155@156
Soudan niggers	@110	none here	none here
Cameroon ball	@105	none here	95@ 96
Benguella	@ 80	none here	none here
Madagascar, pinky	@102	none here	none here
Accra flake	@ 24	none here	none here

EAST INDIAN.

Assam	95@ 96	none here	none here
Pontianak	@434	6½@ 7	6¼@6½
Borneo	@ 40	none here	none here

Late Pará cables quote:

	Per Kilio.	Exchange	Per Kilio.
Islands, fine	7\$700		17d.
Islands, coarse	3\$700		

Latest Manáos advices:

	Per Kilio.	Exchange	Per Kilio.
Upriver, fine	9\$300		17½d.
Upriver, coarse	4\$800		

NEW YORK PRICES FOR JULY (NEW RUBBER).

	1910.	1909.	1908.
Upriver, fine	2.16@2.40	1.50@1.95	.91@.96
Upriver, coarse	1.48@1.55	1.05@1.20	.64@.67
Islands, fine	2.08@2.25	1.41@1.84	.83@.88
Islands, coarse98@1.03	.70@ .75	.42@.46
Cametá	1.10@1.23	.80@ .92	.52@.55

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.	Total 1910.	Total 1909.	Total 1908.
Stocks, June 30.....tons	145	16 =	161	392	347
Arrivals, July	360	282 =	642	623	1350
Aggregating	505	298 =	803	1015	1697
Deliveries, July	309	285 =	594	785	1411
Stocks, July 31	196	13 =	209	230	286

PARA.

	1910.	1909.	1908.	1910.	1909.	1908.
Stocks, June 30.....tons	300	245	373	1460	320	1235
Arrivals, July	1500	760	1080	680	550	376
Aggregating	1800	1005	1453	2140	870	1611
Deliveries, July	1315	455	1203	1000	625	1411
Stocks, July 31.....	485	550	250	1140	245	200

ENGLAND.

	1910.	1909.	1908.
World's visible supply, July 31.....tons	2,373	1,300	1,922
Pará receipts, July 1 to July 31.....	1,500	760	1,080
Pará receipts of caucho, same dates.....	890	330	240
Afloat from Pará to United States, July 31..	219	none	270
Afloat from Pará to Europe, July 31.....	320	275	355

Liverpool.

WILLIAM WRIGHT & Co. report [August 2]:

Fine Pará.—In the absence of much demand from the trade the market has been subject to speculative fluctuations; on balance, prices have declined 1½d. per pound during the month. America still continues to buy the distant positions at a slight discount on current rates, but so far take little interest in near rubber. We may expect more trade demand next month. Value hard, fine, August-September and September-October, 9s. 2d. [= \$2.23].

Rubber Scrap Prices.

LATE New York quotations—prices paid by consumers for car-load lots, per pound, show a slight decline on most grades:

	August 1.	September 1.
Old rubber boots and shoes—domestic.....	10¾@10½	10¾@10½
Old rubber boots and shoes—foreign.....	9¾@ 9½	9¾@10
Pneumatic bicycle tires.....	7 @ 7¼	7 @ 7¼
Automobile tires	9¾@10	9¾@ 9½
Solid rubber wagon and carriage tires.....	10 @10¼	9¾@10
White trimmed rubber.....	11½@12	12½@13
Heavy black rubber.....	6½@ 6¼	6¼@ 6½
Air brake hose.....	5½@ 5¼	5½@ 5¼
Garden hose	2¾@ 2½	2½@ 2¾
Fire and large hose.....	3¼@ 3½	3 @ 3¼
Matting	1½@ 1¾	1¼@ 1½

SITUATION OPEN.

CALENDAR MAN.—First-class operator wanted for mechanical lines. State age and experience and give references. Address Box 607, care of THE INDIA RUBBER WORLD.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows: "During August there has been almost no demand from New York banks for commercial paper, and only a moderate consumption by out of town banks at full rates, the best rubber names ruling at 5½@6 per cent, and those not so well known 6½@6¾ per cent."

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

AUGUST 3.—By the steamer *Christopher*, from Manáos and Pará:

IMPORTERS	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	39,900	9,800	51,100	198,500	
New York Commercial Co.	47,300	9,700	20,300	51,800	129,100
A. T. Morse & Co.	48,200	2,100	25,600		75,900
Hagemeyer & Brunn	8,300	2,200	7,900		18,300
Henderson & Korn			9,900		9,900
William E. Peck & Co.	1,100	300	5,900		7,300
G. Amsinck & Co.			5,500		5,500
Total	144,700	24,100	169,800	103,800	442,400

AUGUST 6.—By the steamer *Minas Geraes*, from Pará:

A. T. Morse & Co.	30,700	300	31,000	52,000
New York Commercial Co.	25,400	1,400	15,900	42,700
Poel & Arnold	7,200	300	25,800	42,500
Total	53,300	2,000	72,700	137,200

AUGUST 15.—By the steamer *Basil*, from Manáos and Pará:

Poel & Arnold	34,400	5,600	58,000	125,600
New York Commercial Co.	55,900	6,500	42,700	107,500
A. T. Morse & Co.	23,600		46,000	91,500
G. Amsinck & Co.	21,000	11,800	11,900	44,700
William E. Peck & Co.	1,800		2,600	4,400
Total	136,700	23,900	161,200	373,500

AUGUST 23.—By the steamer *Clement*, from Manáos and Pará:

New York Commercial Co.	311,500	20,400	66,000	336,300
Poel & Arnold	77,700	16,800	71,600	176,000
A. T. Morse & Co.	91,100	3,400	73,100	167,600
Crossman & Sielcken	3,900	2,800	5,400	16,800
Total	384,200	43,400	216,100	696,700

PARA RUBBER VIA EUROPE.

	POUNDS.
JULY 25.—By the <i>Arabic</i> —Liverpool:	
Raw Products Co. (Coarse)	9,000
AUG. 1.—By the <i>Caronia</i> —Liverpool:	
A. T. Morse & Co. (Caucho)	22,500
AUG. 1.—By the <i>Ucayali</i> —Iquitos:	
G. Amsinck & Co. (Caucho)	24,000
Thomsen & Co. (Caucho)	11,000
AUG. 4.—By the <i>Lincoln</i> —Hamburg:	
New York Commercial Co. (Fine)	6,500
AUG. 5.—By the <i>Mauretania</i> —Liverpool:	
W. H. Stiles & Co. (Coarse)	22,500
AUG. 8.—By the <i>Celtic</i> —Liverpool:	
A. T. Morse & Co. (Caucho)	11,500
W. H. Stiles & Co. (Caucho)	11,000
AUG. 12.—By the <i>Lusitania</i> —Liverpool:	
Livesey & Co. (Coarse)	11,500
AUG. 12.—By the <i>Walderssee</i> —Hamburg:	
Rubber Trading Co. (Fine)	8,000
New York Commercial Co.	13,000
AUG. 15.—By the <i>Cedric</i> —Liverpool:	
A. T. Morse & Co. (Caucho)	33,500
AUG. 16.—By the <i>Carmania</i> —Liverpool:	
Geneva Rubber Co. (Caucho)	78,000
A. T. Morse & Co. (Caucho)	22,500
Robinson & Co. (Caucho)	22,500
AUG. 20.—By the <i>Campania</i> —Liverpool:	
A. T. Morse & Co. (Caucho)	8,000

CENTRALES.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

	POUNDS.
JULY 25.—By the <i>Tennyson</i> —Bahia:	
J. H. Rosback Bros.	88,000
A. Hirsch & Co.	10,000
A. D. Hitch & Co.	3,000
JULY 25.—By the <i>Colon</i> —Colon:	
Brandon & Bros.	9,000
G. Amsinck & Co.	9,000
Hy. Mann & Co.	7,000
J. Lambrada & Co.	5,000
Piza, Nephews Co.	4,000
Herbst Brothers	3,500
New York Commercial Co.	2,500
Demarest Bros.	2,000
Wessels, Kulenkamp Co.	2,000
Pablo Calvet Co.	1,000
L. Johnson & Co.	1,000
JULY 25.—By the <i>Segura</i> —Tampico:	
New York Commercial Co.	160,000
Poel & Arnold	100,000
Ed. Maurer	100,000
Rosing Bros. & Co.	22,500
JULY 25.—By the <i>Altair</i> —Columbia:	
Mecke & Co.	2,500
A. Helde	1,000
De Lima Cortessa Co.	1,000
Maitland, Coppel & Co.	1,000
Cabello & Blanco	1,000
Suzarte & Whitney	1,000
JULY 25.—By the <i>El Súd</i> —Galveston:	
Continental Mexican Rubber Co.	75,000
JULY 27.—By the <i>Prins Willem</i> —Colon:	
G. Amsinck & Co.	10,000
A. Santos & Co.	2,500

Pablo Calvet Co.	2,500
Brandon & Bros.	2,000
De Lima, Cortessa Co.	1,500
A. M. Capen's Sons	1,000
JULY 29.—By the <i>Croble</i> —New Orleans:	
A. T. Morse & Co.	3,500
A. Rosenthal's Sons	4,000
G. Amsinck & Co.	2,500
Manhattan Rubber Co.	1,500
JULY 29.—By the <i>Theopsis</i> —Bahia:	
Poel & Arnold	7,000
JULY 29.—By the <i>Matanzas</i> —Tampico:	
Ed. Maurer	95,000
New York Commercial Co.	34,000
Poel & Arnold	17,000
F. Ullman & Co.	7,000
JULY 29.—By the <i>Monterey</i> —Frontera:	
Harburger & Stack	4,500
E. W. Tibbals Co.	4,500
E. Steiger & Co.	2,000
H. Marquardt & Co.	1,500
JULY 30.—By the <i>El Dorado</i> —Galveston:	
Continental Mex. Rubber Co.	175,000
E. S. Churchill	11,000
AUG. 1.—By the <i>Advance</i> —Colon:	
G. Amsinck & Co.	6,500
Brandon & Bros.	5,500
Herbst Brothers	3,000
J. Lambrada & Co.	2,500
New York Commercial Co.	2,000
AUG. 1.—By the <i>Prins Eitel</i> —Columbia:	
R. Castillo & Co.	4,500
Cabello & Blanco	4,000
Mecke & Co.	3,500
Anthold Helde	2,000
De Lima Cortessa Co.	1,000
Heilbron & Wolff Co.	1,000
AUG. 2.—By the <i>El Alba</i> —Galveston:	
Continental Mex. Rubber Co.	165,000
C. T. Wilson & Co.	15,000
AUG. 3.—By the <i>El Morito</i> —New Orleans:	
Manhattan Rubber Co.	2,500
Robinson & Co.	2,000
A. N. Rotholz	1,500
Edger & Heinlein	1,500
AUG. 3.—By the <i>Vasari</i> —Bahia:	
J. H. Rosback Bros.	20,000
A. Hirsch & Co.	11,500
Poel & Arnold	5,000
AUG. 3.—By the <i>Sarnia</i> —Greytown:	
Suzarte & Whitney	2,000
Wessels-Kulenkamp Co.	1,500
A. Latham & Co.	1,500
Brandon & Bros.	1,500
Semblers & Welles	1,000
Clarke & Smyth	1,000
F. Lapeirda	1,000
B. Leiria & Co.	1,000
R. Gallego & Co.	1,000
AUG. 4.—By the <i>Tagus</i> —Columbia:	
J. H. Rosback Bros.	5,000
A. M. Capen's Sons	3,000
Maitland, Coppel & Co.	3,000
Isaacs & Samuels	3,000
W. R. Grace & Co.	2,000
G. Amsinck & Co.	1,000
A. Helde	1,000
Mecke & Co.	1,000
AUG. 4.—By the <i>Proteus</i> —New Orleans:	
Manhattan Rubber Co.	1,500
Eggers & Heinlein	1,000

AUG. 5.—By the <i>Merida</i> —Vera Cruz:	
H. Marquardt Co.	2,500
T. W. Wilson & Co.	1,500
Harburger & Stack	1,500
Graham Hinkley Co.	1,000
For Havre	3,500
AUG. 5.—By the <i>Panama</i> —Colon:	
Piza Nephews' Co.	7,000
G. Amsinck & Co.	4,000
L. Johnson & Co.	4,000
Pablo, Calvet Co.	1,500
Brandon & Bros.	1,000
AUG. 8.—By the <i>Vigilante</i> —Tampico:	
Ed. Maurer	125,000
New York Commercial Co.	70,000
Poel & Arnold	15,000
AUG. 8.—By the <i>Minas Geraes</i> —Maceio:	
A. D. Hitch & Co.	10,000
AUG. 9.—By the <i>El Mar</i> —Galveston:	
Continental-Mexican Rubber Co.	100,000
AUG. 9.—By the <i>Joachim</i> —Colon:	
G. Amsinck & Co.	2,000
New York Commercial Co.	2,000
A. Helde	3,000
Pablo, Calvet Co.	1,000
Brandon & Bros.	1,000
AUG. 10.—By the <i>Frutera</i> —Honduras:	
A. Rosenthal's Sons	3,000
Eggers & Heinlein	1,500
S. Bauerman & Co.	1,000
AUG. 10.—By the <i>El Dia</i> —Galveston:	
Continental-Mexican Rubber Co.	90,000
AUG. 10.—By the <i>Alianza</i> —Colon:	
G. Amsinck & Co.	5,000
J. Lambrada & Co.	3,000
Herbst Brothers	3,000
Brandon & Bros.	3,500
Piza Nephews' Co.	2,000
New York Commercial Company	1,000
Henry Mann & Co.	1,000
AUG. 12.—By the <i>Esperanza</i> —Frontera:	
Harburger & Stack	5,500
E. Steiger & Co.	3,000
H. Marquardt & Co.	2,500
Federal Export Co.	1,000
AUG. 15.—By the <i>Bayamo</i> —Tampico:	
Ed. Maurer	85,000
New York Commercial Co.	65,000
AUG. 15.—By the <i>Cedric</i> —Liverpool:	
Poel & Arnold	9,000
AUG. 15.—By the <i>Sigmund</i> —Columbia:	
R. Castillo & Co.	4,500
G. Amsinck & Co.	2,500
A. Helde	2,000
Heilbron, Wolff Co.	1,500
Cabello & Blanco	1,500
Brandon & Bros.	1,500
Maitland, Coppel & Co.	1,000
AUG. 15.—By the <i>El Sud</i> —Galveston:	
Continental-Mex. Rubber Co.	150,000
E. L. Churchill	11,000
AUG. 15.—By the <i>Eastern Prince</i> —Bahia:	
Poel & Arnold	27,000
AUG. 15.—By the <i>Cincinnati</i> —Hamburg:	
Geo. A. Allen & Co.	9,000

RUBBER FLUX

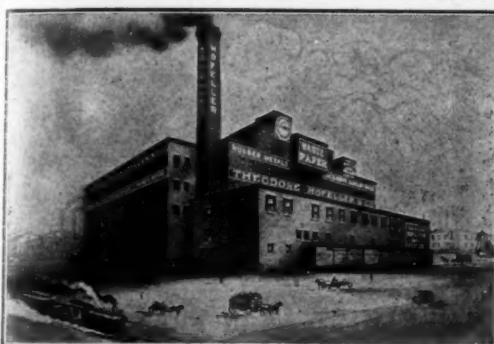
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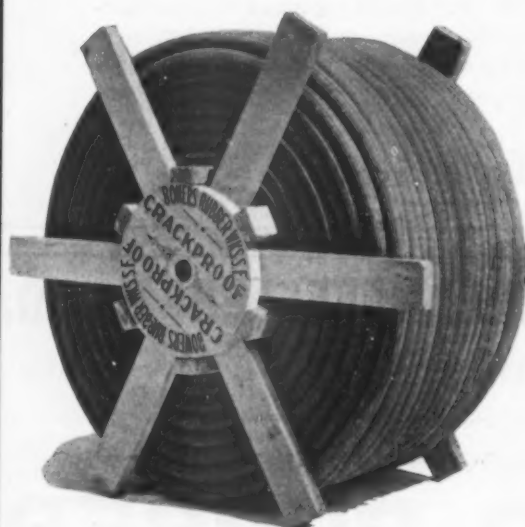
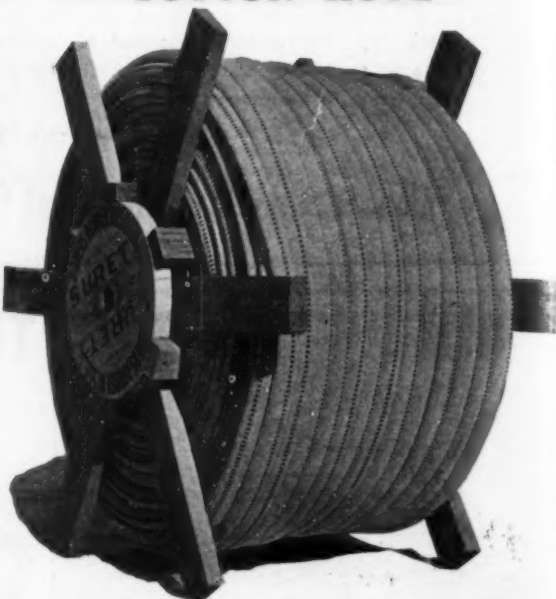
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Hose****BOW RS RUBBER WORKS, 68 SACRAMENTO ST., SAN FRANCISCO****225 So. Los Angeles St., LOS ANGELES****1617 Michigan Ave., CHICAGO****TO BE ISSUED JANUARY 1, 1911****THE RUBBER COUNTRY OF THE AMAZON****By HENRY C. PEARSON**

The whole story of Pará and Caucho Rubbers, their sources, methods of collection and shipment, will be told in detail. The basis of the book will be the series of articles now running in THE INDIA RUBBER WORLD entitled, "Pará, Manáos and the Amazon."

There will be, however, notable additions such as maps, charts and illustrations, together with tables of production and prices, making the volume the first comprehensive authentic history of Rubber and the greatest Rubber Country.

PRICE, \$3.00 POSTPAID**THE INDIA RUBBER PUBLISHING CO.****No. 395 BROADWAY, NEW YORK**

Aug. 16.—By the <i>Colon</i> =Colon:			W. L. Gough & Co..... 11,500			Aug. 15.—By the <i>St. Paul</i> =London:		
G. Amsinck & Co.....	6,000		R. Badenhop.....	10,800	94,800	Poel & Arnold.....	*22,500	
J. Lambrada & Co.....	5,000		Aug. 12.—By the <i>Lusitania</i> =Liverpool:			New York Commercial Co....	*6,000	*28,500
Dumarest Bros.....	1,000		George A. Alden & Co.....	11,000		Aug. 15.—By the <i>Planet Mars</i> =Colombo:		
Brandon & Bros.....	1,000		Aug. 12.—By the <i>Richmond</i> =Lisbon:			New York Commercial Co....	*22,500	
A. Latham & Co.....	1,000	14,000	Poel & Arnold.....	11,500	11,500	A. T. Morse & Co.....	*7,000	*29,500
Aug. 16.—By the <i>Creole</i> =New Orleans:			Aug. 12.—By the <i>Waldersee</i> =Hamburg:			Aug. 15.—By the <i>Minetanka</i> =London:		
A. T. Morse & Co.....	3,500		A. T. Morse & Co.....	25,000		A. T. Morse & Co.....	*18,000	
Manhattan Rubber Co.....	2,500		W. L. Gough & Co.....	5,500		General Rubber Co.....	*7,000	
Robinson & Co.....	1,500	10,000	Rubber Trading Co.....	3,500	34,000	Rubber Import. Co.....	18,000	43,000
Eggers & Heinlein.....	2,500		Aug. 15.—By the <i>Cedric</i> =Liverpool:			Aug. 19.—By the <i>Attoll</i> =Singapore:		
Aug. 16.—By the <i>Kroonland</i> =Antwerp:			Poel & Arnold.....	3,500		W. L. Gough & Co.....	10,000	
Poel & Arnold.....	*11,000		Livesey & Co.....	11,500		Aug. 19.—By the <i>Adriatic</i> =London:		
Aug. 18.—By the <i>Oruba</i> =Colombia:			Raw Products Co.....	4,500	19,500	New York Commercial Co....	*26,000	
A. M. Capen's Bros.....	2,500		Aug. 19.—By the <i>Adriatic</i> =London:			Poel & Arnold.....	*13,500	*39,500
G. Amsinck & Co.....	2,000		Rubber Trading Co.....	11,500		Aug. 22.—By the <i>Finland</i> =Antwerp:		
Suzarte & Whitney.....	2,000	8,500	George A. Alden & Co.....	4,500	16,000	A. T. Morse & Co.....	*27,000	
De Lima, Cortessa Co.....	2,000		Aug. 20.—By the <i>Campania</i> =Liverpool:			Aug. 24.—By the <i>Mesaba</i> London:		
Aug. 18.—By <i>El Valle</i> =Galveston:			George A. Alden & Co.....	5,000		A. T. Morse & Co.....	*22,500	
Continental-Mexican Rubber Co.	*25,000		Aug. 22.—By the <i>Allemania</i> =Hamburg:			Ed. Maurer.....	*3,500	
C. T. Wilson & Co.....	*9,000	*84,000	A. T. Morse & Co.....	22,500		Robinson & Co.....	9,000	
Aug. 19.—By the <i>Mexico</i> =Frontera:			Rubber Trading Co.....	11,500		Manhattan Rubber Mfg. Co..	2,500	37,500
Harburger & Stack.....	4,500		Raw Products Co.....	2,500	36,500	GUTTA-JELUTONG.		
E. Steiger & Co.....	1,500		Aug. 22.—By the <i>Finland</i> =Antwerp:			Aug. 10.—By the <i>Suruga</i> =Singapore:		
E. W. Tibbals & Co.....	1,500	8,500	R. Badenhop.....	17,000		L. Littlejohn & Co.....	550,000	
H. Marquardt & Co.....	1,500		EAST INDIAN.			Heabler & Co.....	225,000	
Aug. 20.—By the <i>Byron</i> =Bahia:			[*Denotes plantation rubber.]			W. L. Gough & Co.....	155,000	
F. H. Rossback Bros.....	65,000		JULY 25.—By the <i>Philadelphia</i> =London:			Poel & Arnold.....	100,000	
A. Hirsch & Co.....	25,000		New York Commercial Co....	*15,000		George A. Alden & Co.....	90,000	1,120,000
New York Commercial Co.....	22,500		Poel & Arnold.....	*13,500	*28,500	Aug. 11.—By the <i>Schuykill</i> =Singapore:		
Poel & Arnold.....	9,000		JULY 26.—By the <i>Finland</i> =Antwerp:			George A. Alden & Co.....	275,000	
A. D. Hitch & Co.....	3,500	125,000	New York Commercial Co....	*45,000		W. L. Gough & Co.....	225,000	
Aug. 22.—By <i>El Norte</i> =Galveston:			A. T. Morse & Co.....	*40,000	*85,000	Heabler & Co.....	150,000	
Continental-Mexican Rubber Co.	22,500		JULY 28.—By the <i>Teutonic</i> =London:			W. L. Gough & Co.....	150,000	580,000
E. L. Churchill.....	*9,000	*84,000	New York Commercial Co....	*37,000		GUTTA-PERCHA.		
Aug. 22.—By the <i>Seguranca</i> =Tampico:			Poel & Arnold.....	9,000		Aug. 6.—By the <i>Amerika</i> =Hamburg:		
Edw. Maurer.....	*45,000		Poel & Arnold.....	4,500	55,000	Robt. Sottau Co.....	15,000	
Poel & Arnold.....	*50,000		JULY 29.—By the <i>Suazi</i> =Colombo:			Aug. 10.—By the <i>Suruga</i> =Singapore:		
In Transit.....	*55,000	*150,000	New York Commercial Co....	*15,000		Herbler & Co.....	22,500	
Aug. 22.—By the <i>Altai</i> =Colombia:			A. T. Morse & Co.....	*16,000	*21,000	Meister & Smillie.....	22,500	45,000
Maitland, Coppell Co.....	4,500		Aug. 1.—By the <i>St. Louis</i> =London:			Aug. 11.—By the <i>Schuykill</i> =Singapore:		
Scholz & Martinet.....	3,500		Poel & Arnold.....	*33,500		Heabler & Co.....	33,500	
J. H. Rossback & Bros.....	2,000		New York Commercial Co....	*8,000		Aug. 10.—By the <i>Athole</i> =Singapore:		
Caello & Biancho.....	2,000		Poel & Arnold.....	4,500	46,000	Heabler & Co.....	11,500	
A. Helde.....	1,000	13,000	Aug. 1.—By the <i>Rotterdam</i> =Rotterdam:			BALATA.		
Aug. 22.—By the <i>Finland</i> =Antwerp:			Rubber Trading Co.....	9,000		JULY 26.—By the <i>Coppename</i> =Demerara:		
Poel & Arnold.....	*22,500		Aug. 2.—By the <i>Minetanka</i> =London:			Ed. Maurer.....	1,500	
Aug. 23.—By the <i>Advance</i> =Colon:			A. T. Morse & Co.....	*15,000		J. A. Pauli & Co.....	2,000	
G. Amsinck & Co.....	11,000		Robinson & Co.....	25,000	60,000	Trame & Co.....	1,500	5,000
Brandon & Bros.....	6,000		Manhattan Rubber Mfg. Co..	20,000		Aug. 3.—By the <i>Saramaba</i> =Demerara:		
Herbst Brothers Co.....	4,000		Aug. 2.—By the <i>Vaderland</i> =Antwerp:			Ed. Maurer.....	2,500	
Piza Nephews' Co.....	4,000		R. Badenhop.....	11,000		Aug. 8.—By the <i>Parima</i> =Demerara:		
Pablo, Calvet Co.....	3,000		Aug. 3.—By the <i>Oceanic</i> =London:			Suzarte & Whitney.....	3,500	
New York Commercial Co....	3,500		New York Commercial Co.....	*11,000	*11,000	Ed. Maurer.....	2,000	5,500
Roldan & Van Sickle.....	2,000		Aug. 8.—By the <i>New York</i> =London:			Aug. 16.—By the <i>Marowynne</i> =Demerara:		
National Sewing Machine Co..	2,000		A. T. Morse & Co.....	*11,500		Ed. Maurer.....	20,000	
Wessels, Kulemkamp & Co.....	1,500	36,000	W. H. Stiles & Co.....	9,000		G. Amsinck & Co.....	11,000	
AFRICANS.			New York Commercial Co....	*7,000	27,500	Iglesias, Lobo & Co.....	2,500	33,500
JULY 23.—By the <i>Stoterdyk</i> =Rotterdam:			Aug. 8.—By the <i>Lapland</i> =Antwerp:			Aug. 23.—By the <i>Tuinana</i> =Demerara:		
A. T. Morse & Co.....	17,000		Rubber Trading Company.....	11,000		Ed. Maurer.....	3,500	
JULY 25.—By the <i>Philadelphia</i> =London:			Aug. 9.—By the <i>Minneapolis</i> =London:			G. Amsinck & Co.....	2,500	
Robinson & Co.....	9,000		General Rubber Co.....	*45,000		George A. Alden & Co.....	1,500	
JULY 28.—By the <i>Teutonic</i> =London:			Ed. Maurer.....	*11,500	56,500	C. Tennanto Sons.....	1,500	9,000
Poel & Arnold.....	56,000		Aug. 10.—By the <i>Kabinga</i> =Colombo:			CUSTOM HOUSE STATISTICS.		
JULY 29.—By the <i>Mourlisio</i> =Lisbon:			New York Commercial Co....	*8,000		PORT OF NEW YORK—JULY.		
Poel & Arnold.....	22,500		A. T. Morse & Co.....	*8,000	*16,000	Imports.		
Aug. 1.—By the <i>Baltic</i> =Liverpool:			Aug. 10.—By the <i>Suruga</i> =Singapore:			India-rubber.....	5,469,137	\$7,325,306
Poel & Arnold.....	35,000		O. Isenstein & Co.....	11,000		Balata.....	54,535	40,390
George A. Alden & Co.....	4,500	39,500	Robinson & Co.....	9,000		Gutta-percha.....	48,287	7,226
Aug. 2.—By the <i>Vaderland</i> =Antwerp:			W. L. Gough & Co.....	13,500		Gutta-jelutong (Pontianak)...	2,996,526	203,667
W. L. Gough & Co.....	5,500		New York Commercial Co....	3,500	37,000	Total.....	8,568,485	\$7,576,589
R. Badenhop.....	10,000	20,500	Aug. 11.—By the <i>Majestic</i> =London:			Exports.		
Livesey & Co.....	5,000		New York Commercial Co....	*17,000		India-rubber.....	53,376	89,610
Aug. 4.—By the <i>President Lincoln</i> =Hamburg:			Poel & Arnold.....	*11,000	*28,000	Balata.....	15,780	15,644
George A. Alden & Co.....	135,000		Aug. 11.—By the <i>Schuykill</i> =Singapore:			Gutta-percha.....
A. T. Morse & Co.....	85,000		Poel & Arnold.....	33,500		Reclaimed rubber.....	123,656	18,842
Poel & Arnold.....	35,000		Heabler & Co.....	33,500		Rubber scrap, imported....	3,349,326	\$278,896
W. L. Gough & Co.....	40,000		O. Isenstein & Co.....	30,000		Rubber scrap, exported....	420,426	30,020
Rubber Trading Co.....	22,500		W. L. Gough & Co.....	28,000		BOSTON ARRIVALS.		
Livesey & Co.....	3,500		George A. Alden & Co.....	25,000		JULY 14.—By the <i>Saxonia</i> =Liverpool:		
Raw Products Co.....	7,000		Malaysian Rubber Co.....	7,000		Poel & Arnold (Africans)....	44,500	
R. Badenhop.....	5,500	333,500	New York Commercial Co....	*5,500	162,500	Geo. A. Alden & Co (Africans)	3,500	48,000
Aug. 6.—By the <i>Amerika</i> =Hamburg:			Aug. 12.—By the <i>Waldersee</i> =Hamburg:					
A. T. Morse & Co.....	11,500		George A. Alden & Co.....	35,000				
George A. Alden & Co.....	4,000	15,500						
Aug. 8.—By the <i>Celtic</i> =Liverpool:								
General Rubber Co.....	155,000							
George A. Alden & Co.....	7,000							
Rubber Trading Co.....	5,500							
Poel & Arnold.....	22,500							
Livesey & Co.....	3,500	193,500						
Aug. 8.—By the <i>Lapland</i> =Antwerp:								
A. T. Morse & Co.....	50,000							
Livesey & Co.....	22,500							



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British Crude Rubber Statistics.

OFFICIAL STATEMENT—JANUARY 1 TO JUNE 30.

	1908.	1909.	1910.
Imports pounds	36,280,272	39,866,960	56,279,888
Exports pounds	18,645,200	21,635,936	29,237,152
Net imports	17,635,072	18,231,024	27,042,736
	VALUES.		
Imports	£4,635,476	£6,282,294	£16,280,980
Exports	2,154,605	3,804,399	8,448,898
Net imports	£2,480,871	£2,477,895	£7,832,082

United States Imports of Crude Rubber.

OFFICIAL STATEMENT—FISCAL YEARS ENDING JUNE 30.

	1907-08	1908-09.	1909-10.
United Kingdom pounds	6,809,622	12,825,192	15,556,981
Germany	2,821,194	4,503,286	6,528,147
Other Europe	6,883,473	7,598,809	9,598,411
Central America	992,198	861,636	1,424,449
Mexico	9,269,443	15,460,305	23,486,384
Brazil	32,645,173	43,993,670	39,510,920
Other South America.....	1,537,887	1,964,114	2,503,683
East Indies	1,237,487	1,127,686	2,419,956
Other countries	36,683	25,137	15,750

Total	pounds 62,233,160	88,359,895	101,044,681
Import value	\$36,613,185	\$61,799,723	\$101,078,825
Average per pound.....	58.8 cents	69.8 cents	\$1.00

Net Imports.

Imports	pounds 62,233,160	88,359,895	101,044,681
Exports	4,110,667	3,791,961	6,492,947

Net imports	58,122,493	84,567,934	94,551,734
-------------------	------------	------------	------------

OTHER UNITED STATES IMPORTS.

	1907-08.	1908-09.	1909-10.
Balata	pounds 584,552	1,157,018	399,003
Gutta-percha	188,610	255,559	784,501
Waste rubber	16,331,035	20,497,695	37,364,671
Gutta-jelutong	22,803,303	24,826,296	52,392,444

German Official Statistics.

JANUARY 1 TO JUNE 30.

INDIA-RUBBER.

	1909.	1910.
Imports	pounds 15,616,260	21,466,280
Exports	4,060,100	725,720
Net Imports	11,556,160	15,740,560

GUTTA-PERCHA.

Imports	pounds 4,846,160	7,485,280
Exports	212,080	441,540
Net Imports	4,634,080	7,043,740

BALATA.

Imports	pounds 700,700	901,120
Exports	127,160	255,200
Net Imports	573,540	645,920
Total Net Imports.....	16,763,780	23,430,220

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

From January 1 to July 11, 1909 and 1910, compiled by the Ceylon Chamber of Commerce:

	1909.	1910.
To Great Britain..... pounds	355,926	589,882
To United States.....	179,494	499,996
To Canada		1,911
To Belgium	19,630	25,472
To Germany	14,897	8,946
To Italy	608	841
To Australia	7,504	1,099
To France	1,639

Total	579,698	1,128,147
[Same period 1908—338,411 pounds; same 1907—242,370.]		

TOTAL EXPORTS FROM MALAYA.

[From January 1 to the dates named. Reported by BARLOW & Co., Singapore. Ceylon exports not included.]

	1908.	1909.	1910.
From Singapore (to June 30)....	1,015,368	1,240,137	1,533,732
From Penang (to June 16).....	500,610	1,301,352	912,716
Fr'm Pt. Swettenham (to June 10)			3,413,929
Total	pounds 1,515,978	2,541,489	4,860,377

A BOOK for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

WILLIAM T. BAIRD, President

ROBERT B. BAIRD, Vice-President

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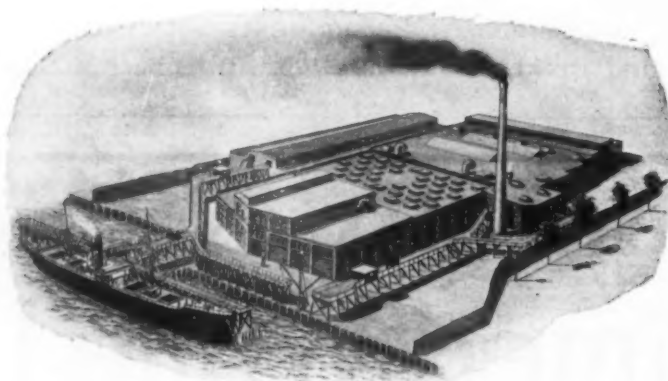
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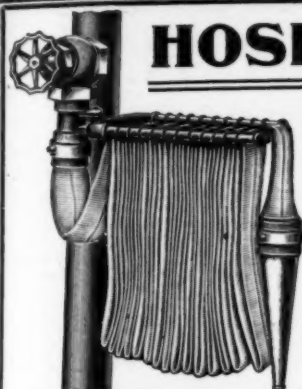
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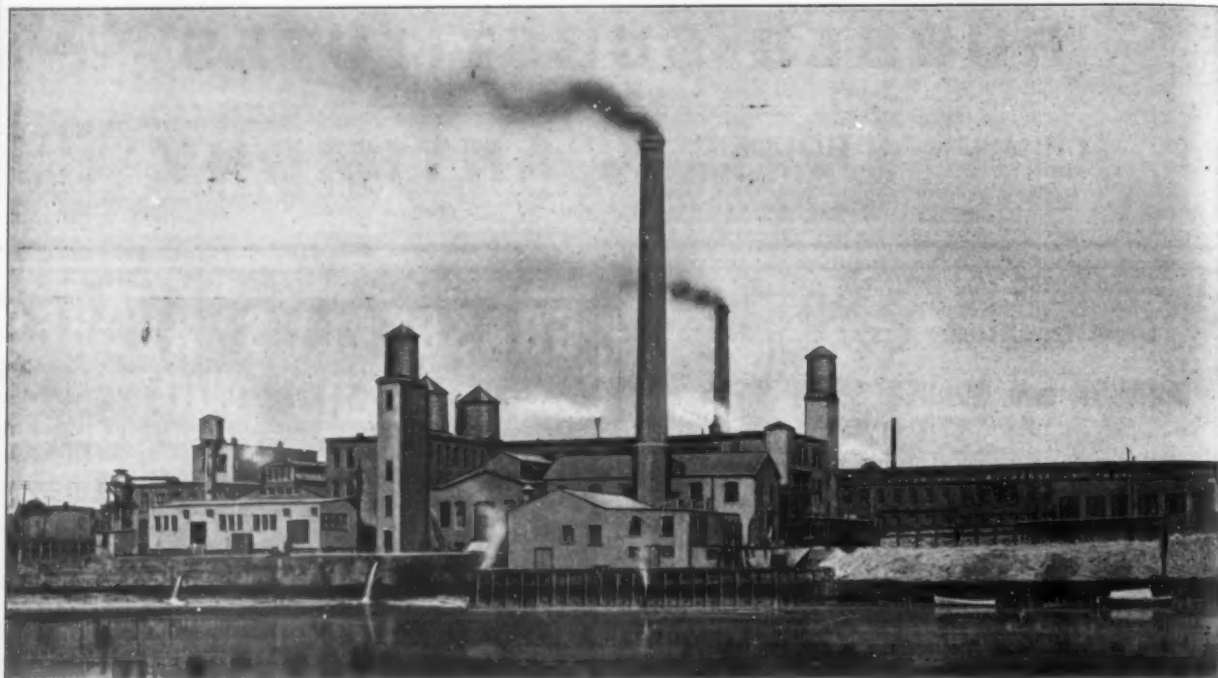
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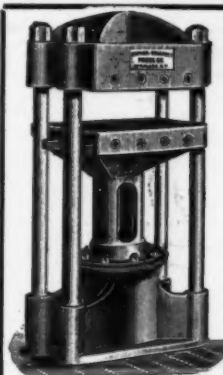
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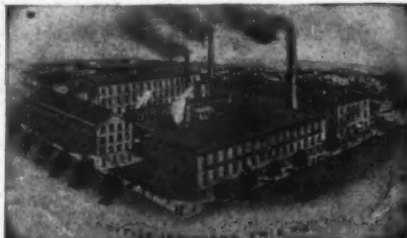
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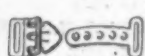
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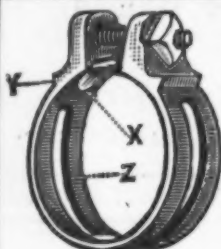
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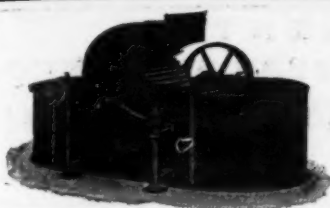
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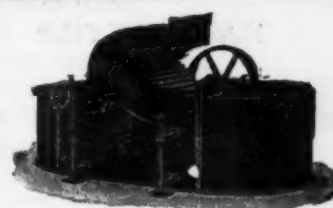
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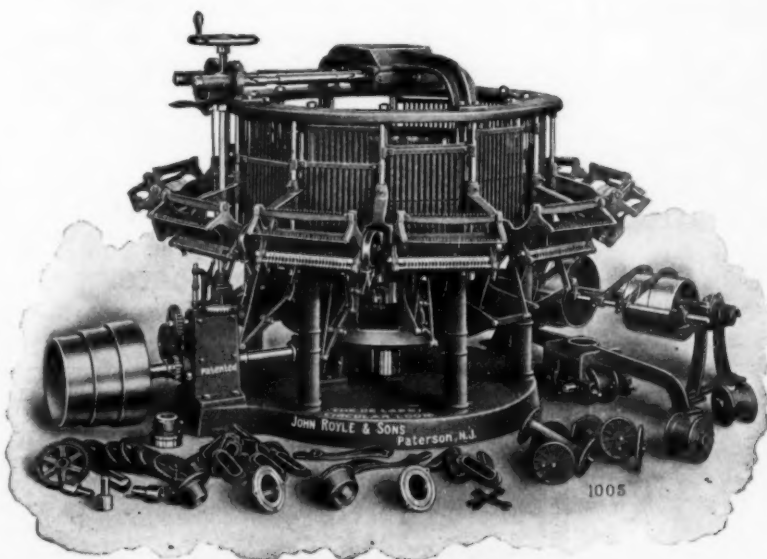
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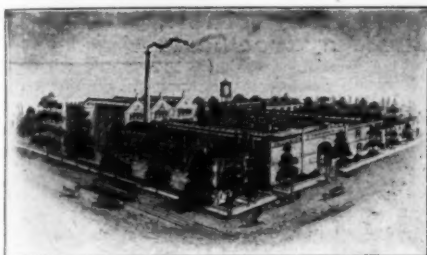
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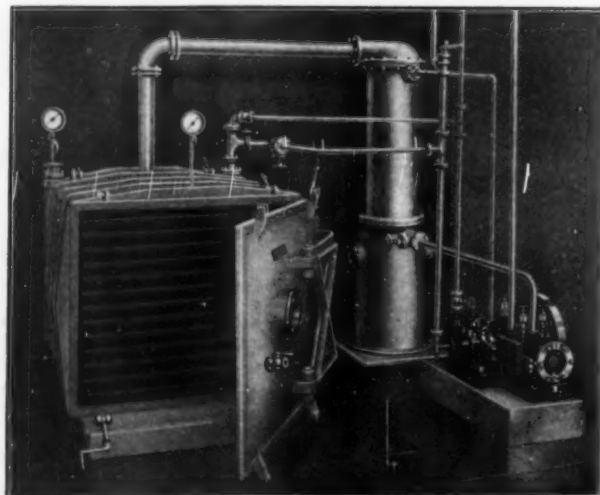
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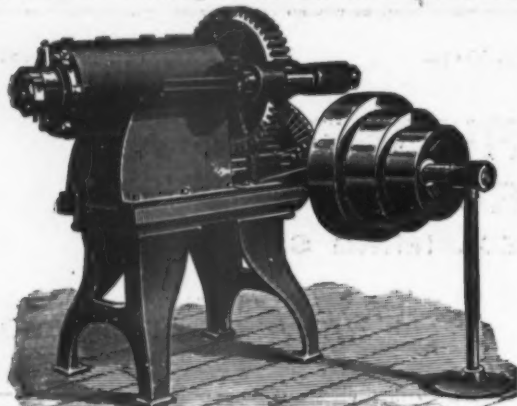
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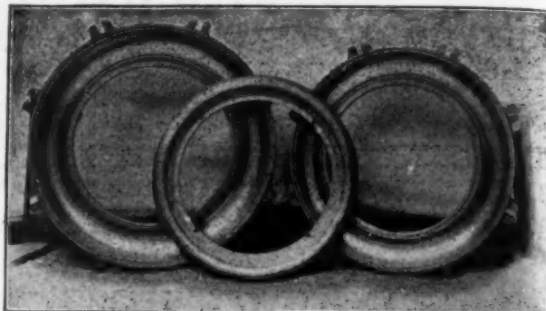
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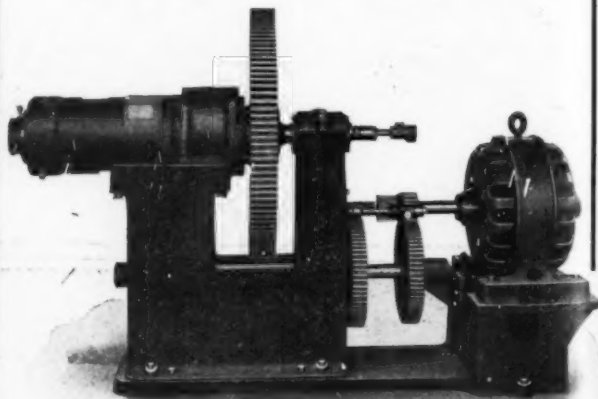
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See THE INDIA RUBBER WORLD, March 1, 1910—page 202.

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The Publishers' Page

Everybody Hears About Rubber Now.

THE daily press of the United States from the beginning has never devoted so much space to the subject of rubber as during the past month. Similarly the press, usually so well informed, has never before, on any subject, disseminated so much misinformation. This is not written in criticism of the daily newspapers, as a class, so much as to lead up to two or three suggestions.

* * *

But What do the Daily Papers Say?

THE newspapers are giving so much attention to rubber nowadays owing to the growing importance of the industry and trade based upon rubber. Do they give space to radium, except incidentally, as a curiosity? But rubber is becoming important in a larger sense than ever before. It may be said that wheat is important, and so are beeswax and horseshoes. But the last mentioned articles are older than history, whereas rubber is so new that most of its important uses have come about within the memory of the average man. Trust the newspapers to scent out what is new.

* * *

Why the Morning Stars Sing.

BUT every newspaper writer does not, necessarily, know much about rubber, and some of the things printed in the dailies on this subject are calculated to make the morning stars keep on singing together—for joy. For instance, the idea most fostered in the newspapers just now is that crude rubber prices are unduly high because the people who are obliged to use it insist on paying for the stuff more than it is worth! Is house rent expensive because tenants insist on adding to the bills sent in by their landlords?

Where the Trade Paper Comes In.

ON the theory that the business man who declines to blow his own horn may be too modest, THE INDIA RUBBER WORLD does not hesitate to take advantage of the present opportunity to point out the difference between newspaper rubber news and what appears in the columns of the trade papers. It may be that the trained worker in the "special" journals may never be able to find the "trusts" which the daily papers—and some statesmen—prate about, but the readers of such a paper as THE INDIA RUBBER WORLD do find in its pages facts which we hope are more likely to help them earn their bread and butter.

* * *

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WHEN THE INDIA RUBBER WORLD was about twenty-one years younger than to-day, and one of its representatives called at the office of a leader in the rubber industry to ask for an opinion as to trade conditions, this gentleman drew from a private drawer a paper containing figures which he said had been obtained from a governmental employé for a liberal fee. That is the way some rubber statistics had to be obtained in the other years, but no fees brought out so much statistical information on rubber as this journal prints in its regular issues—and THE INDIA RUBBER WORLD has never bribed a governmental or company employé to supply one single fact, and never will.

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TABLE OF CONTENTS

[With Condensed Titles of Chapters.]

- I.—Grades of Crude Rubber; Physical Characteristics.
- II.—Some Little Known Rubbers and Pseudo Gums.
- III.—Primary Processes—Washing, Mixing and Calendering.
- IV.—Vulcanizing Ingredients and Processes.
- V.—Ingredients used in Dry Mixing in Rubber Compounds.
- VI.—Substitutes for India-rubber and Gutta-percha.
- VII.—Reclaimed Rubber and its Uses.
- VIII.—Resins, Balsams, and Waxes used in Compounding.

- IX.—Coloring Matter.
- X.—Acids, Alkalies, and Their Derivatives.
- XI.—Vegetable, Mineral, and Animal Oils.
- XII.—Solvents used in India-rubber Proofing and Cementing and in Commercial Cements.
- XIII.—Miscellaneous Processes and Compounds, including Waterproofing Compounds.
- XIV.—Physical Tests and Methods of Analysis of Crude Rubber and Vulcanized Rubber.
- XV.—Gutta-percha.

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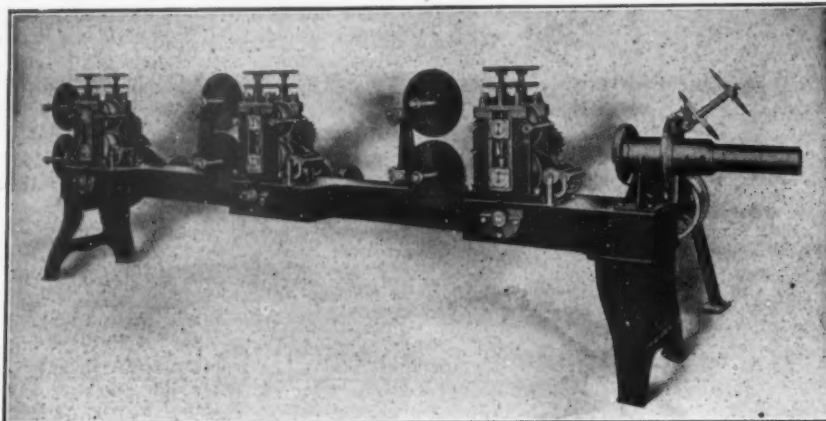
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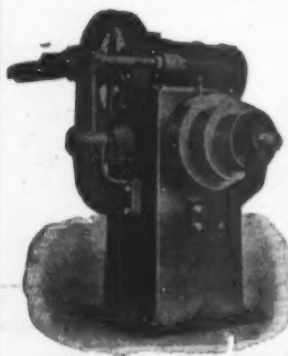
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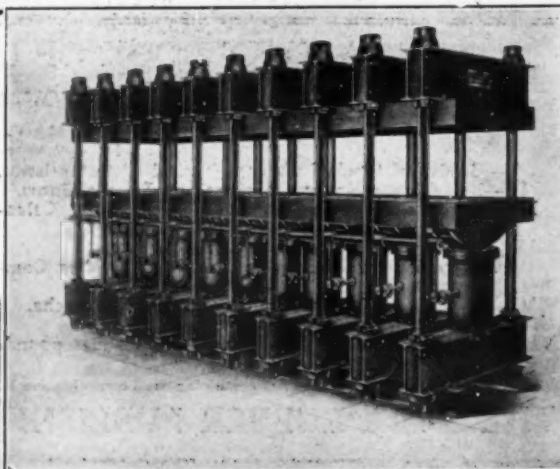


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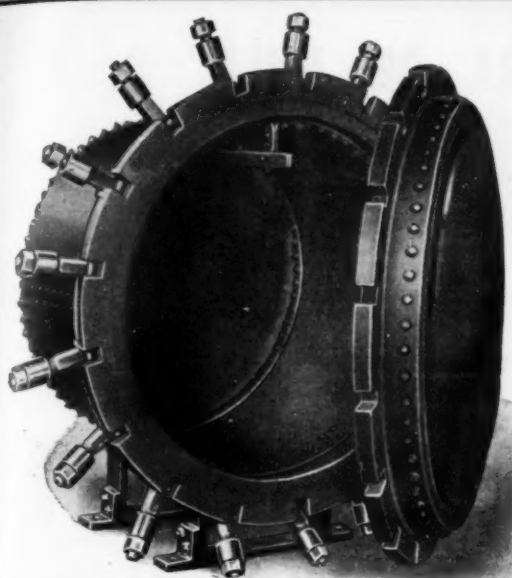
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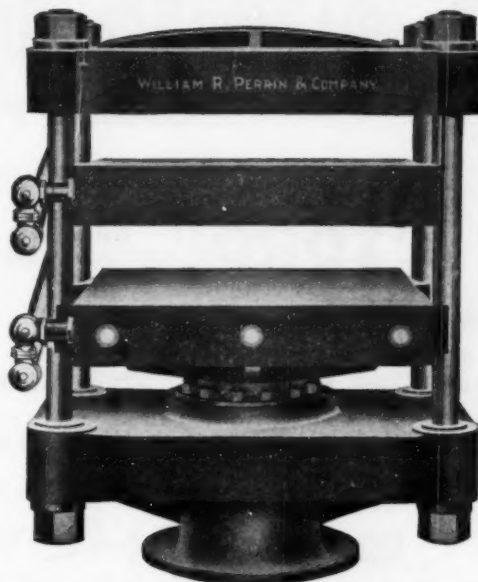
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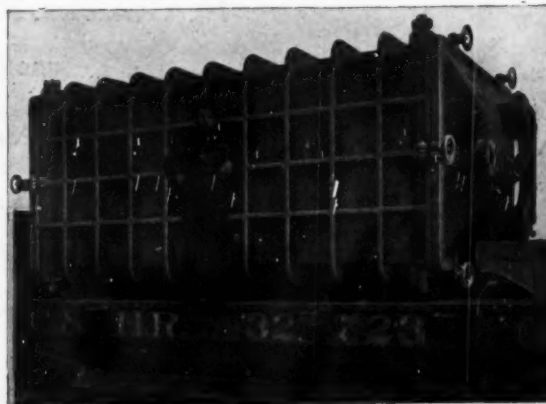
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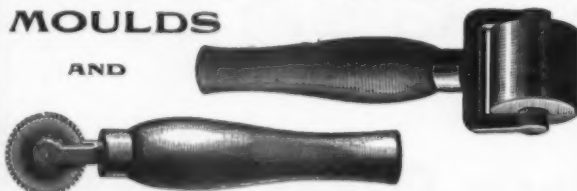
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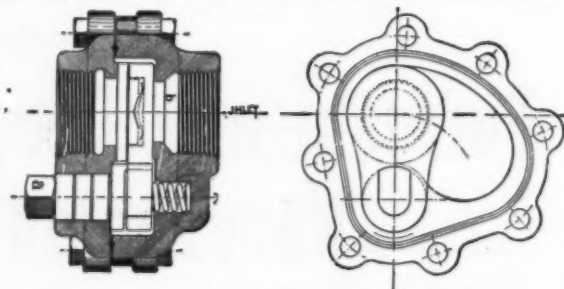
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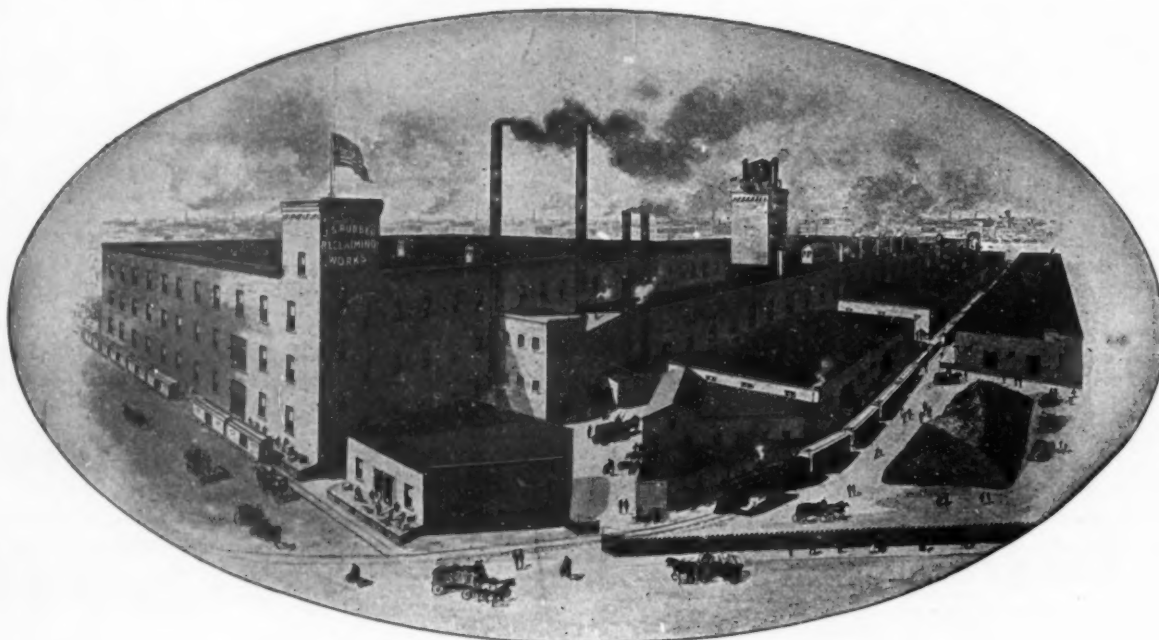
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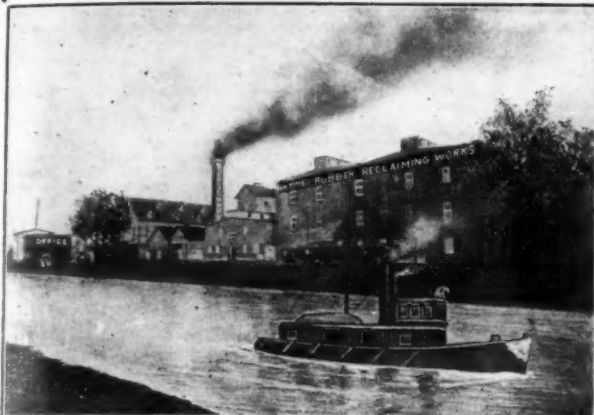
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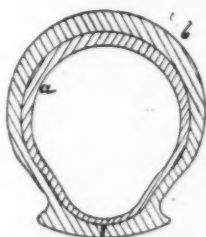
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Republie Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.

Voorhees Rubber Mfg. Co., Jersey City.

Force Cups.

Continental R. Works, Erie, Pa.
Essex Rubber Co., Trenton, N. J.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Hodgman Rubber Co., New York.
Mattson Rubber Co., Lodi, N. J.
Morgan & Wright, Detroit, Mich.

National India Rubber Co., Bristol, R. I.
Schacht Rubber Co., Huntington, Ind.

Fruit Jar Rings.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati,
Ohio.

Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.

Empire Rubber Mfg. Co., Trenton, N. J.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Manhattan Rubber Mfg. Co., New York.
Republie Rubber Co., Youngstown, O.
Rubber Products Co., Barbours, O.

New York Belting & Packing Co., N. Y.

Fuller Balls.

Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.

Manhattan Rubber Mfg. Co., New York.
Mattson Rubber Co., Lodi, N. J.
Morgan & Wright, Detroit, Mich.

National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey
City.

New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republie Rubber Co., Youngstown, O.

Rubber Products Co., Barbours, O.

Gage Glass Washers.

Boston Belting Co., Boston, Mass.
Canadian Rubber Co. of Montreal.
Cincinnati R. M. Co., Cincinnati, O.

Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.
Empire Rubber Mfg. Co., Trenton, N. J.

B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Home Rubber Co., Trenton, N. J.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York.

Mattson Rubber Co., Lodi, N. J.
Mechanical Rubber Co., Chicago, Ill.
Morgan & Wright, Detroit, Mich.

National India Rubber Co., Bristol, R. I.

N. J. Car Spring & Rubber Co., Jersey
City, N. J.
New York Belting & Packing Co., N. Y.

New York Rubber Co., New York.
Revere Rubber Co., Boston, Mass.
Schacht Rubber Co., Huntington, Ind.

Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City,
N. J.

Gas-Bags (Rubber).

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.

Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Morgan & Wright, Detroit, Mich.
National India Rubber Co., Bristol, R. I.
Peerless Rubber Mfg. Co., New York.

The Seamless Rub. Co., New Haven, Conn.
Tyr Rubber Co., Andover, Mass.
Voorhees Rubber Mfg. Co., Jersey City.

Gasket Tubing.

Boston Belting Co., Boston—New York.
Canadian Rubber Co. of Montreal.
Continental Rubber Works, Erie, Pa.

B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.

New Jersey Car Spring & Rubber Co.
Revere Rubber Co., Boston—New York.
Voorhees Rubber Mfg. Co., Jersey City.

Grain Drill Tubes.

Cincinnati Rubber Mfg. Co., Cincinnati,
Ohio.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Manhattan Rubber Mfg. Co., New York.

Hat Bags.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Continental Rubber Works, Erie, Pa.

B. F. Goodrich Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.

Mattson Rubber Co., Lodi, N. J.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey
City.

New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.

Republie Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.
Voorhees Rubber Mfg. Co., Jersey City.

Horse Shoe Pads.

Canadian Rubber Co. of Montreal.
Cincinnati R. M. Co., Cincinnati, O.
Continental Rubber Works, Erie, Pa.

Essex Rubber Co., Trenton, N. J.
Home Rubber Co., Trenton, N. J.
Keystone R. M. Co., Erie, Pa.

Manhattan Rubber Mfg. Co., New York.
Morgan & Wright, Detroit, Mich.
Peerless Rubber Mfg. Co., New York.

Plymouth Rubber Co., Stoughton, Mass.
Revere Rubber Co., Boston—New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose—Wire Wound.

Boston Belting Co., Boston—New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.

The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.

National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey
City.

New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republie Rubber Co., Youngstown, O.

Revere Rubber Co., Boston—New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose Core.

Alderfer Crates Co., Sharon Center, O.
Hose Pipes, Nozzles, Couplings and
Fittings.

W. D. Allen Mfg. Co., Chicago.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Eureka Fire Hose Mfg. Co., New York.
F. R. Howell Brass Works, Phila., Pa.
Revere Rubber Co., Boston.

A. Schrader's Son, Inc., New York.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Hose Linings.

Boston Belting Co., Boston—New York.
Boston Woven Hose & Rubber Co.
Empire Rubber Mfg. Co., Trenton, N. J.

B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Manhattan Rubber Mfg. Co., New York.

N. J. Car Spring & Rubber Co., Jersey
City, N. J.
Peerless Rubber Mfg. Co., New York.

Revere Rubber Co., Boston—New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose Racks and Reels.

W. D. Allen Mfg. Co., Chicago.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

New York Belting & Packing Co., N. Y.
Wirt & Knox Mfg. Co., Philadelphia.

Hose—Rubber Lined.

Cotton and Linn.
Boston Belting Co., Boston—New York.
Boston Woven Hose & Rubber Co.

Gutta Percha & Rubber Mfg. Co., N. Y.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.

Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Fire Hose Mfg. Co., New York.
B. F. Goodrich Co., Akron, O.

Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey
City, N. J.

New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republie Rubber Co., Youngstown, O.

Revere Rubber Co., Boston—New York.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City.

Hose—Submarine.

Boston Belting Co., Boston—New York.
Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.

Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Manhattan Rubber Mfg. Co., New York.
Republie Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.

A. Schrader's Son, Inc., New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose Bands, Straps & Menders.

W. D. Allen Mfg. Co., Chicago.
Boston Woven Hose & Rubber Co.
F. R. Howell Brass Works, Phila., Pa.

A. Schrader's Son, Inc., N. Y.
William Yerdon, Fort Plain, N. Y.

Lawn-Hose Supporters.

W. D. Allen Mfg. Co., Chicago.
C. J. Bailey & Co., Boston.

Lawn Sprinklers.

W. D. Allen Mfg. Co., Chicago.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Mallets (Rubber).

Boston Belting Co., Boston—New York.
Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.

The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.
Keystone R. M. Co., Erie, Pa.

Manhattan Rubber Mfg. Co., New York.
Morgan & Wright, Detroit, Mich.
National India Rubber Co., Bristol, R. I.

New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston—New York.

Mould Work.

(See Mechanical Rubber Goods.)
Ajax-Grieb Rubber Co., Trenton, N. J.
Atlantic R. Co., Hyde Park, Mass.

H. O. Candell Co., Bridgeport, Ct.
Canton Rubber Co., Canton, O.
Cincinnati R. M. Co., Cincinnati, O.

Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Essex Rubber Co., Trenton, N. J.

Footless Rubber Co., Ashland, O.
Huntman Rubber Co., New York.
Massachusetts Chemical Co., Walpole,
Mass.

Mattson Rubber Co., Lodi, N. J.
Morgan & Wright, Detroit, Mich.
Plymouth Rubber Co., Stoughton, Mass.

The Seamless Rub. Co., New Haven, Conn.
Tyr Rubber Co., Andover, Mass.

Oil Well Supplies.

Boston Belting Co., Boston—New York.
Boston Woven Hose & Rubber Co.
Continental Rubber Works, Erie, Pa.

B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey
City.

New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republie Rubber Co., Youngstown, O.

Revere Rubber Co., Boston—Pittsburgh
Voorhees Rubber Mfg. Co., Jersey City

Packing.

(See Mechanical Rubber Goods.)

Essex Rubber Co., Trenton, N. J.
Jenkins Bros., New York.
Mattson Rubber Co., Lodi, N. J.

The Seamless Rub. Co., New Haven, Conn.

Paper Machine Rollers.

Boston Belting Co., Boston—New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.

Manhattan Rubber Mfg. Co., New York.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.

Republie Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.
Voorhees Rubber Mfg. Co., Jersey City.

Plumbers' Supplies.

Canadian Rubber Co. of Montreal.
H. O. Candell Co., Bridgeport, Ct.
Continental Rubber Works, Erie, Pa.

Essex Rubber Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Manhattan Rubber Mfg. Co., New York.
Mattson Rubber Co., Lodi, N. J.
Morgan & Wright, Detroit, Mich.

Republie Rubber Co., Youngstown, O.
Voorhees Rubber Mfg. Co., Jersey City.
Western Rubber Works, Goshen, Ind.

Pump Valves.

(See Mechanical Rubber Goods.)
Essex Rubber Co., Trenton, N. J.
Jenkins Bros., New York.

Mattson Rubber Co., Lodi, N. J.
Massachusetts Chemical Co., Walpole,
Mass.

Schacht Rubber Co., Huntington, Ind.
F. R. Howell Brass Works, Phila., Pa.

Rock Drill Couplings.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Cincinnati R. M. Co., Cincinnati, O.

Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.
Empire Rubber Mfg. Co., Trenton, N. J.

B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Mattson Rubber Co., Lodi, N. J.

Mechanical Rubber Co., Chicago.
Morgan & Wright, Detroit, Mich.
N. J. Car Spring & Rubber Co., Jersey
City, N. J.

New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.

Republie Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.
The Seamless Rub. Co., New Haven, Conn.

Sewing Machine Rubbers.

Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.

Springs—Rubber.

Boston Belting Co., Boston—New York.
Canadian Rubber Co. of Montreal.
Continental Rubber Works, Erie, Pa.

Essex Rubber Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.

The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.

Massachusetts Chemical Co., Walpole,
Mass.
Mattson Rubber Co., Lodi, N. J.

Morgan & Wright, Detroit, Mich.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey
City.

New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.

Republie Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.
Voorhees Rubber Mfg. Co., Jersey City.

Stair Treads.

Boston Belting Co., Boston—New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Cincinnati R. M. Co., Cincinnati, O.
Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.

Empire Rubber Mfg. Co., Trenton, N. J.
Essex Rubber Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.

Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Massachusetts Chemical Co., Walpole,
Mass.

National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey
City, N. J.

New York Belting & Packing Co., N. Y.

RUBBER BUYERS' DIRECTORY—Continued.

Stair Treads—Continued.

New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Thread.

B. F. Goodrich Co., Akron, O.
Mechanical Fabric Co., Providence, R. I.
Revere Rubber Co., Boston-New York.

Tiling.

American Hard Rubber Co., N. Y.
Canadian Rubber Co. of Montreal, Ltd.
Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City.

New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Voorhees Rubber Mfg. Co., Jersey City.

Tubing.

(See Mechanical Rubber Goods.)

American Hard Rubber Co., New York.
Boston W. H. & R. Co., Boston.

Cincinnati R. M. Co., Cincinnati, O.
Davidson Rubber Co., Boston.

Essex Rubber Co., Trenton, N. J.
Mattson Rubber Co., Lodi, N. J.

Morgan & Wright, Detroit, Mich.
L. J. Muttly Co., Boston.

Plymouth Rubber Co., Stoughton, Mass.
Rubber Products Co., Barberton, O.

Star Rubber Co., Akron, O.
The Seamless Rub. Co., New Haven, Conn.

Tyer Rubber Co., Andover, Mass.
Voorhees Rubber Mfg. Co., Jersey City.

Osmond Sayern, Philadelphia, Pa.

Valve Balls.

Boston Belting Co., Boston.

Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.

B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.

Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.

National India Rubber Co., Bristol, R. I.
New York Belting & Packing Co., N. Y.

New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.

Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.

Valve Discs.

American Hard Rubber Co., New York.

Boston Belting Co., Boston-New York.
Cincinnati R. M. Co., Cincinnati, O.

Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.

Jenkins Bros., N. Y.
Manhattan Rubber Mfg. Co., New York.

Mattson Rubber Co., Lodi, N. J.
Morgan & Wright, Detroit, Mich.

New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.

Republic Rubber Co., Youngstown, O.
Western Rubber Works, Goshen, Ind.

Valves.

(See Mechanical Rubber Goods.)

Essex Rubber Co., Trenton, N. J.
Jenkins Bros., New York-Chicago.

Mattson Rubber Co., Lodi, N. J.
Schacht Rubber Co., Huntington, Ind.

Vulcanite Emery Wheels.
Manhattan Rubber Mfg. Co., Passaic, N. J.

New York Belting & Packing Co., Ltd., New York.

Wringer Rolls.

Canadian Rubber Co., of Montreal.
Cincinnati R. M. Co., Cincinnati, O.

Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.

B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.

Mattson Rubber Co., Lodi, N. J.
New York Belting & Packing Co., N. Y.

Republic Rubber Co., Youngstown, O.

Atlantic R. Co., Hyde Park, Mass.
C. J. Bailey & Co., Boston.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Canton Rubber Co., Canton, O.
Cleveland Rubber Co., Cleveland, O.

Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.

Faultless Rubber Co., Ashland, O.
B. F. Goodrich Co., Akron, O.

Hodgman Rubber Co., New York.
Kibele & Co., August, Weissenfels, Ger.

Luxerne Rubber Co., Trenton, N. J.
Mass Chemical Co., Walpole, Mass.

National India Rubber Co., Bristol, R. I.
Parker, Stearns & Co., N. Y.

Pirelli & Co., Milan, Italy.
Rubber Products Co., Barberton, O.

Seamless Rubber Co., New Haven, Ct.
Star Rubber Co., Akron, O.

Tyer Rubber Co., Andover, Mass.
Walpole Rubber Works, Walpole, Mass.

Walpole Rubber Works, Walpole, Mass.

Air Goods.
The Seamless Rub. Co., New Haven, Conn.

Balls, Dolls and Toys.
New York Rubber Co., New York.

Combination Fountain Syringes
and Hot Water Bottle Fix-
tures.

A. Schrader's Son, Inc., N. Y.
Combs.

American Hard Rubber Co., New York.
Elastic Bands.

Canadian Rubber Co., of Montreal.
Cleveland Rubber Co., Cleveland, O.

Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Hodgman Rubber Co., New York-Boston.
The Rubber Products Co., Barberton, O.

The Seamless Rub. Co., New Haven, Conn.
Star Rubber Co., Akron, O.

Electrician Gloves.
Star Rubber Co., Akron, O.

Erasable Rubbers.
B. F. Goodrich Co., Akron, O.

Finger Cots.
Canton Rubber Co., Canton, O.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.

Daval Rubber Co., Providence.
Faultless Rubber Co., Ashland, O.

B. F. Goodrich Co., Akron, O.
The Rubber Products Co., Barberton, O.

The Seamless Rub. Co., New Haven, Conn.
Star Rubber Co., Akron, O.

Gloves.
Canadian Rubber Co., of Montreal.

Canton Rubber Co., Canton, O.
Daval Rubber Co., Providence, R. I.

Faultless Rubber Co., Ashland, O.
B. F. Goodrich Co., Akron, O.

National India Rubber Co., Bristol, R. I.
Rubber Products Co., Barberton, O.

The Seamless Rub. Co., New Haven, Conn.
Star Rubber Co., Akron, O.

Hard Rubber Goods.
American Hard Rubber Co., New York.

Canadian Rubber Co., of Montreal.
Davidson Rubber Co., Boston.

H. O. Canfield Co., Bridgeport, Ct.
Daval Rubber Co., Providence, R. I.

Luxerne Rubber Co., Trenton, N. J.
Stokes Rubber Co., Joseph, Trenton, N. J.

Tyer Rubber Co., Andover, Mass.

Hospital Sheatings.
Atlantic R. Co., Hyde Park, Mass.

Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.

B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.

National India Rubber Co., Bristol, R. I.
Plymouth Rubber Co., Stoughton, Mass.

Tyer Rubber Co., Andover, Mass.

Hot Water Bottle Stopples.

A. Schrader's Son, Inc., N. Y.

Ice Bags and Ice Caps.

Canton Rubber Co., Canton, O.

Cleveland Rubber Co., Cleveland, O.

Davidson Rubber Co., Boston.

Daval Rubber Co., Providence.

Faultless Rubber Co., Ashland, O.

B. F. Goodrich Co., Akron, O.

National India Rubber Co., Bristol, R. I.

The Rubber Products Co., Barberton, O.

The Seamless Rub. Co., New Haven, Conn.

Star Rubber Co., Akron, O.

Tyer Rubber Co., Andover, Mass.

Life Preservers.

Daval Rubber Co., Providence.

Hodgman Rubber Co., New York.

National India Rubber Co., Bristol, R. I.

Shower Bath Sprinklers.

Daval Rubber Co., Providence.

A. Schrader's Son, Inc., New York.

Sponges (Rubber).

Faultless Rubber Co., Ashland, O.

N. Y. Rubber Sponge Co., Chicago.

Stationers' Sundries.

American Hard Rubber Co., New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.

Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Hodgman Rubber Co., New York-Boston.
Seamless Rubber Co., New Haven, Ct.

Tyer Rubber Co., Andover, Mass.

Stopples (Metal).

A. Schrader's Son, Inc., N. Y.

Stopples (Rubber).

Continental R. Works, Erie, Pa.
Cleveland Rubber Co., Cleveland, O.

Daval Rubber Co., Providence, R. I.
Hodgman Rubber Co., New York.

Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.

New York Belting & Packing Co., N. Y.
The Seamless Rub. Co., New Haven, Conn.

Tyer Rubber Co., Andover, Mass.

Throat Bags.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.

Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

National India Rubber Co., Bristol, R. I.
The Seamless Rub. Co., New Haven, Conn.

Tyer Rubber Co., Andover, Mass.

Tobacco Pouches.

Canadian Rubber Co., of Montreal.
Davidson Rubber Co., Boston.

Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

The Rubber Products Co., Barberton, O.
The Seamless Rub. Co., New Haven, Conn.

Tyer Rubber Co., Andover, Mass.

MACKINTOSHED AND
SURFACE GOODS.

Air Goods (Rubber).

Canadian Rubber Co., of Montreal.
Cleveland Rubber Co., Cleveland, O.

Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.

B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.

New York Rubber Co., New York.
National India Rubber Co., Providence.

Rubber Products Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

Air Mattresses.

Canadian Rubber Co., of Montreal.
Mechanical Fabric Co., Providence, R. I.

National India Rubber Co., Bristol, R. I.

Barbers' Bibs.

Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.

Tyer Rubber Co., Andover, Mass.

Bathing Caps.

Atlantic R. Co., Hyde Park, Mass.
Daval Rubber Co., Providence, R. I.

B. F. Goodrich Co., Akron, O.
Rubber Products Co., Barberton, O.

Bellows Cloths.

Atlantic R. Co., Hyde Park, Mass.
Boston Rubber Co., Boston.

Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.

Calendering.

Plymouth Rubber Co., Stoughton, Mass.

Carriage Ducks and Drills.

Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.

Gutta Percha & Rubber Mfg. Co., Toronto.

Clothing.

Canadian Rubber Co., of Montreal.

Chicago Rubber Clothing Co., Racine, Wis.

Cleveland Rubber Co., Cleveland, O.

Gutta Percha & Rubber Mfg. Co., of Toronto.

Hodgman Rubber Co., New York.

National India Rubber Co., Bristol, R. I.

Pirelli & Co., Milan, Italy.

Cravenette Co., Ltd.

Diving Apparatus.

A. Schrader's Son, Inc., New York.

Hodgman Rubber Co., New York.

Horse Covers.

Hodgman Rubber Co., New York.

National India Rubber Co., Bristol, R. I.

Leggings.

Cleveland Rubber Co., Cleveland, O.

Hodgman Rubber Co., New York.

National India Rubber Co., Bristol, R. I.

Mackintoshes.

(See Clothing.)

Proofing.

Canadian Rubber Co., of Montreal.
Plymouth Rubber Co., Stoughton, Mass.

Rain Coats.

Cravenette Co., Ltd.

Rubber Coated Cloths.

Mechanical Fabric Co., Providence, R. I.

RUBBER FOOTWEAR.

Boots and Shoes.

American Rubber Co., Boston.

Boston Rubber Shoe Co., Boston.

Canadian Rubber Co., of Montreal.

L. Candee & Co., New Haven, Conn.

Converse Rubber Shoe Co., Malden, Mass.

B. F. Goodrich Co., Akron, O.

Gutta Percha & Rubber Mfg. Co., of Toronto.

Hood Rubber Co., Boston.

Lycoum Rubber Co., Williamsport, Pa.

Meyer Rubber Co., New York.

National India Rubber Co., Boston.

United States Rubber Co., New York.

Wales-Goodyear Rubber Co., Boston.

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Manusachusetts Chemical Co., Walpole, Mass.

Morgan & Wright, Detroit, Mich.

Plymouth Rubber Co., Stoughton, Mass.

Western Rubber Works, Goshen, Ind.

Tennis Shoes.

American Rubber Co., Boston.

Boston Rubber Shoe Co., Boston.

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

National India Rubber Co., Providence.

United States Rubber Co., New York.

Wading Pants.

Canadian Rubber Co., of Montreal.

Hodgman Rubber Co., New York.

DENTAL AND STAMP
RUBBER.

Dental Gum.

American Hard Rubber Co., New York.

Cleveland Rubber Co., Cleveland, O.

Tyer Rubber Co., Andover, Mass.

Rubber Dam.

Cleveland Rubber Co., Cleveland, O.

Davidson Rubber Co., Boston.

Daval Rubber Co., Providence, R. I.

B. F. Goodrich Co., Akron, O.

Hodgman Rubber Co., New York.

The Seamless Rub. Co., New Haven, Conn.

Tyer Rubber Co., Andover, Mass.

Stamp Gums.

B. F. Goodrich Co., Akron, O.

Mattson Rubber Co., Lodi, N. J.

Mechanical Rubber Co., Chicago, Ill.

N. J. Car Spring & Rubber Co., Jersey City, N. J.

New York Belting & Packing Co., N. Y.

ELECTRICAL.

Electrical Supplies.

American Hard Rubber Co., New York.

Joseph Stokes Rubber Co., Trenton, N. J.

Massachusetts Chemical Co., Boston.

Mattson Rubber Co., Lodi, N. J.

Tyer Rubber Co., Andover, Mass.

Friction Tape.

Boston Belting Co., Boston.

RUBBER BUYERS' DIRECTORY—Continued.

Insulating Compounds.
Canadian Rubber Co. of Montreal.
Gutta Percha & Rubber Mfg. Co., Toronto.
Massachusetts Chemical Co., Boston.

Insulated Wire and Cables.
The Indiana Rubber and Insulated Wire Co., Jonesboro, Ind.
Kerite Ins. Wire & Cable Co., N. Y.
National India Rubber Co., Providence.

Insulated Wire Waxes.
American Wax Co., Boston.

Splicing Compounds.
Boston W. H. & R. Co., Boston.
Home Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Walpole, Mass.

SPORTING GOODS.

Foot Balls.
Canadian Rubber Co. of Montreal.

Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Golf Balls.
B. F. Goodrich Co., Akron, O.

Sporting Goods.
Canadian Rubber Co. of Montreal.
Essex Rubber Co., Trenton, N. J.
Faultless Rubber Co., Ashland, O.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Striking Bags.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Rubber Products Co., Barberton, O.

Submarine Outfits.
Hodgman Rubber Co., New York.
A. Schrader's Sons, Inc., New York.

MISCELLANEOUS.

Armor for Hose.
Woven Steel Hose & Rubber Co., Trenton, N. J.

Boxes (Wood).
Henry H. Shelp & Co., Philadelphia.

Brass Fittings.
A. Schrader's Son, New York.

Cement (Rubber).
Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Essex Rubber Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Manhattan Rubber Mfg. Co., New York.
Massachusetts Chemical Co., Walpole, Mass.
N. J. Car Spring & Rubber Co., Jersey City, N. J.

New York Belting & Packing Co., N. Y.
St. Louis Rubber Cement Co., St. Louis, Mo.

Chemists.
Maywald, F. J., New York.

Manufacturing Chemists.
Farrington & Co., Boston.

Rubber Journals.
Gummi-Zeitung, Berlin, Germany.
L'Agriculture des Pays Chauds, France.

Rubber Tree Seeds.
J. P. William & Bros., Heneratgoda, Ceylon.

Tapping Tools.
G. Van den Kerckhove, Brussels, Belgium.

Valves for Air Goods.
A. Schrader's Son, Inc., New York.

Vermin Exterminators.
Hygienic Dis. & Ext. Co., N. Y.

MACHINERY AND SUPPLIES FOR RUBBER MILLS.

RUBBER MACHINERY.

Acid Tanks.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.

Air Compressors.
Williams F. & M. Co., Akron.

Band Cutting Machines.
A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.

Belt Folding Machines.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.

Branding Dies.
Horace E. Fine, Trenton, N. J.
H. A. Hulslander, Trenton.

Belt Slitters.
Farrel F. & M. Co., Ansonia, Conn.

Belt Stretchers.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.
Hoggson & Pettis Mfg. Co., New Haven.

Boilers.
William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Braiders.
New England Butt Co., Providence, R. I.

Calenders.
Birmingham Iron Foundry, Derby, Conn.
David Bridge & Co., Castleton, Manchester, Eng.
Farrel F. & M. Co., Ansonia, Conn.
Textile-Finishing Machinery Co., Providence, R. I.

Calender Shells.
W. J. Gammeter, Cadiz, O.

Castings.
A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.
McFarland Fdry. & Mach. Co., Trenton, N. J.
Williams F. & M. Co., Akron.

Chucks (Lathe).
Hoggson & Pettis Mfg. Co., New Haven.

Churns.
American Tool & Machine Co., Boston.

Cloth Dryers.
Farrel F. & M. Co., Ansonia, Conn.

Clutches.
Farrel F. & M. Co., Ansonia, Conn.
Williams F. & M. Co., Akron.

Cotton Goods.
Sheetings, Drills, Yarns, Fabrics.
Boston Yarn Co., New York.
J. H. Lane & Co., N. Y.
J. Spencer Turner Co., New York.
Wellington Sears & Co., Boston, Mass.

Crackers.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.

Devulcanizers.
Biggs Boiler Works Co., Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Edred W. Clark, Hartford, Conn.

Farrel F. & M. Co., Ansonia, Conn.
John E. Thropp & Sons Co., Trenton, N. J.
William R. Thropp, Trenton, N. J.

Dies.
Horace E. Fine Co., Trenton, N. J.
Hoggson & Pettis Mfg. Co., New Haven.
Housatonic Mach. & Tool Co., Bridgeport, Conn.
Phila. Cons. Die Co., Phila., Pa.
Taplin, Rice-Clerkin Co., Akron, O.
Williams F. & M. Co., Akron.

Doubling Machines.
American Tool & Machine Co., Boston.
Farrel F. & M. Co., Ansonia, Conn.

Drying Machines.
Buffalo Foundry & Machine Co., Buffalo, N. Y.
David Bridge & Co., Castleton, Manchester, Eng.
Birmingham Iron Foundry, Derby, Conn.
Joseph P. Devine, Buffalo, N. Y.
Farrel F. & M. Co., Ansonia, Conn.
Textile-Finishing Machinery Co., Providence, R. I.

Embossing Calenders.
Farrel F. & M. Co., Ansonia, Conn.
Textile-Finishing Machinery Co., Providence, R. I.

Engine Steam.
William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Engraving Rolls.
Farrel F. & M. Co., Ansonia, Conn.
Hoggson & Pettis Mfg. Co., New Haven.

Grinders and Mixers.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.
John E. Thropp & Sons Co., Trenton, N. J.
William R. Thropp, Trenton, N. J.

Hangers.
Farrel F. & M. Co., Ansonia, Conn.

Hose Machines.
A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.
New England Butt Co., Providence, R. I.

Hydraulic Accumulators.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.
John E. Thropp & Sons Co., Trenton, N. J.
Williams F. & M. Co., Akron.
R. D. Wood & Co., Phila., Pa.

Insulating Machinery.
New England Butt Co., Providence, R. I.
John Royle & Sons, Paterson, N. J.

Lathes—Hard Rubber.
A. Adamson, Akron, O.

Lathes—Jar Ring.
A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
John E. Thropp & Sons Co., Trenton, N. J.
William R. Thropp, Trenton, N. J.

Machinists' Tools.
Hoggson & Pettis Mfg. Co., New Haven.

Moulds.
A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Continental Rubber Works, Erie, Pa.
Hoggson & Pettis Mfg. Co., New Haven.
Housatonic Mach. & Tool Co., Bridgeport, Conn.
McFarland Fdry. & Mach. Co., Trenton, N. J.
Taplin, Rice-Clerkin Co., Akron, O.
John E. Thropp & Sons Co., Trenton, N. J.
Williams Foundry & Machine Co., Akron, O.

Mold Engraving Co.
H. A. Hulslander, Trenton, N. J.

Pattern Makers.
McFarland Fdry. & Mach. Co., Trenton, N. J.

Pillow Blocks.
Farrel F. & M. Co., Ansonia, Conn.
McFarland Fdry. & Mach. Co., Trenton, N. J.

Presses (for Rubber Work).
A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Boomer & Boschert Press Co., Syracuse, N. Y.
Edred W. Clark, Hartford, Conn.
Farrel F. & M. Co., Ansonia, Conn.
Monarch Machinery Co., New York.
Perrin & Co., Wm. R. Chicago.
John E. Thropp & Sons Co., Trenton, N. J.
William R. Thropp, Trenton, N. J.
Williams Foundry & Machine Co., Akron, O.
R. D. Wood & Co., Phila.

Pumps.
Birmingham Iron Foundry, Derby, Conn.
Boomer & Boschert Press Co., Syracuse.
Farrel F. & M. Co., Ansonia, Conn.

Racks for Boot and Shoe Cars.
Hoggson & Pettis Mfg. Co., New Haven.

Reducing Valves.
Mason Regulator Co., Boston.

Rollers (Hand).
Hoggson & Pettis Mfg. Co., New Haven.

Rubber Covering Machines.
New England Butt Co., Providence, R. I.

Separators.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, O.

Shafting.
Farrel F. & M. Co., Ansonia, Conn.

Spreaders.
American Tool & Machine Co., Boston.
Birmingham Iron Foundry, Derby, Conn.
New England Butt Co., Providence, R. I.

Steam Traps and Specialties.
Jenkins Bros., New York.
Mason Regulator Co., Boston.

Steel Stamps.
Horace E. Fine Co., Trenton, N. J.
Hoggson & Pettis Mfg. Co., New Haven.

Stichers (Hands).
Hoggson & Pettis Mfg. Co., New Haven.

Strip Covering Machines.
Strip Cutters.
New England Butt Co., Providence, R. I.

Tire Molds.
John E. Thropp & Sons Co., Trenton, N. J.
Williams Foundry & Machine Co., Akron, O.

Tire Repair Equipment.
Williams F. & M. Co., Akron.

Tire Vulcanizing Presses.
Williams F. & M. Co., Akron.

Tubing Machines.
A. Adamson, Akron, O.
Edred W. Clark, Hartford, Conn.
Housatonic Mach. & Tool Co., Bridgeport, Conn.
John Royle & Sons, Paterson, N. J.
Williams Foundry & Machine Co., Akron, O.

Vacuum Drying Chambers.
Buffalo Foundry & Machine Co., Buffalo, N. Y.
Joseph P. Devine Co., Buffalo, N. Y.

Varnishing Machines.
Birmingham Iron Foundry, Derby, Conn.

Vulcanizers.
Biggs Boiler Works Co., Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.
John E. Thropp & Sons Co., Trenton, N. J.
William R. Thropp, Trenton, N. J.
Williams F. & M. Co., Akron.
R. H. Wood & Co., Phila.

Washers.
Birmingham Iron Foundry, Derby, Conn.
David Bridge & Co., Castleton, Manchester, Eng.
Farrel F. & M. Co., Ansonia, Conn.
John E. Thropp & Sons Co., Trenton, N. J.
William R. Thropp, Trenton, N. J.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, O.

Wrapping Machines.
Birmingham Iron Foundry, Derby, Conn.
Farrel F. & M. Co., Ansonia, Conn.

SECOND-HAND MACHINERY.

W. C. Coleman Co., Boston.
Philip McGroarty, Trenton, N. J.
M. Norton & Co., Charlestown, Mass.

FACTORY SUPPLIES.

Aluminum Flake.
Aluminum Flake Co., Akron, O.

Antimony, Sulphurets of.
Golden.

Action-Ges. Georg Egestorff's Salzwasser.
Linden, Germany.

Atlas Chemical Co., Newtonville, Mass.
Golden and Grimsen.

Joseph Cantor, New York.
Katzbach & Bullock Co., Trenton, N. J.
Wm. H. Scheel, New York.

MACHINERY AND SUPPLIES FOR RUBBER MILLS—Continued.**Antimony, Sulphurets of.—Continued.****Artificial Rubber.**

National Co., Chicago.
Stamford (Conn.) Rubber Supply Co.
Type & King, London, England.

Balata.

George A. Alden & Co., Boston.
Robt. Badenhop, N. Y.
Raw Products Co., N. Y.

Barytes.

Gabriel & Schall, New York.

Benzol.

Barrett Mfg. Co., Philadelphia.
Samuel Cabot, Boston.

Black Hypo.

Joseph Cantor, New York.
William H. Scheel, New York.
Type & King, London, England.

Carbon Bisulphide.

George W. Speaight, New York.

Chemicals.

George W. Speaight, New York.
S. P. Wetherill Co., Philadelphia, Pa.

Colors.

Joseph Cantor, New York.
Katzbach & Bullock Co., Trenton, N. J.
William H. Scheel, New York.
Type & King, London, England.

Crude Rubber.

George A. Alden & Co., Boston.
Badenhop, Robt., New York.
W. C. Coleman Co., Boston.
Wallace L. Gough Co., New York.
Hagermeyer & Bruns, New York.
Adolph Hirsch & Co., New York.
Raw Products Co., N. Y.
Rubber Trading Co., New York-Boston.

Dermatine.

The Dermatine Co., London.
Ducks and Drills (Cotton).
J. H. Lane & Co., New York.

Fossil Flour.

American Tripoli Co., Seneca, Mo.
Oxford-Tripoli Co., Ltd., N. Y.

Gilsonite.

William H. Scheel, New York.

Guayule Rubber.

E. S. Churchill, N. Y.
Continental Rubber Co.
Ed. Maurer, New York.

Gutta-Percha.

George A. Alden & Co., Boston.
Robt. Badenhop, N. Y.
E. S. Churchill, N. Y.
W. C. Coleman Co., Boston.
Raw Products Co., N. Y.
Rubber Trading Co., New York-Boston.

Hydro-Carbon Products.

Geo. A. Alden & Co., Boston.
American Wax Co., Boston.
William H. Scheel, New York.
Raven Mining Co. of Utah, Chicago.

Hypo, Black.

Katzbach & Bullock Co., Trenton, N. J.

Infusorial Earth.

Oxford-Tripoli Co., Ltd., N. Y.
Stamford (Conn.) Rubber Supply Co.

Kapak.

Raven Mining Co. of Utah, Chicago.

Lampblack.

Samuel Cabot, Boston.

Lead—Blue.**Lead—Sublimed White.**

Katzbach & Bullock Co., Trenton, N. J.
Picher Lead Co., Chicago, Ill.
St. Louis Smelting & Refining Co., St. Louis.

Lithopone.

Gabriel & Schall, New York.

Mineral Rubber.

Geo. A. Alden & Co., Boston.
American Wax Co., Boston.

Paris White and Whiting.

H. F. Taintor Mfg. Co., New York.
Reclaiming Compounds.

Farrington & Co., Boston.

Reclaimed Rubber.

Alkali Rubber Co., Akron, O.
F. H. Appleton & Son, Boston.
Bloomington (N. J.) Soft Rubber Co.
E. H. Clapp Rubber Co., Boston, Mass.

W. C. Coleman Co., Boston.

Continental Rubber Works, Erie, Pa.

Danversport Rubber Co., Boston.

Eastern Rubber Co., New York.

Harmer R. Rec. Wks., E. Millstone, N. J.

Manufactured Rub. Co., Phila., Pa.

New Jersey Rub. Co., Lambertville, N. J.

Pequanoe Rubber Co., Butler, N. J.

Philadelphia Rubber Works, Philadelphia.

Stockton Rubber Co., Stockton, N. J.

Stokes Rubber Co., Trenton, N. J.

S. & L. Rubber Co., Chester, Pa.

United Rubber Co., Akron, O.

U. S. Rubber Reclaiming Works, N. Y.

Westmoreland Rubber Mfg. Co., Grapeville, Pa.

Agents and Dealers.

Philip McGrory, Trenton, N. J.

H. P. Moorhouse, Paris, France.

Rubber Trading Co., New York-Boston.

Rubber Flux.

Massachusetts Chemical Co., Walpole, Mass.

Rubber Makers, White.

Grasselli Chemical Co., N. Y.

Scrap Rubber.

Bers & Co., Philadelphia.

S. Birkenstein & Sons, Chicago.

W. C. Coleman Co., Boston.

Wm. H. Cummings & Sons, New York.

Eisemann, Wm., New York.

Gordon, Jas., Trenton, N. J.

Theodore Hofeller & Co., Buffalo, N. Y.

M. Kaufman, Chicago.

B. Loewenthal & Co., New York and Chicago.

Philip McGrory, Trenton, N. J.

Millard, Geo. P., Clyde, N. Y.

E. F. Norton & Co., Chicago.

M. Norton & Co., Charlestown, Mass.

Rosenthal, H. A., Trenton, N. J.

J. Schuurmann, London.

Trenton Scrap Rubber Supply Co., Trenton, N. J.

M. J. Welpert, Odessa, Russia.

Substitute.

T. C. Ashley & Co., Boston.

Joseph Cantor, New York.

Carter, Bell Mfg. Co., New York.

Corn Products Refining Co., New York.

Katzbach & Bullock Co., Trenton, N. J.

Massachusetts Chemical Co., Boston.

The Pierce Co., E. Rochester, N. Y.

The Rubber Chemical Co., Birmingham, England.

Wm. H. Scheel, New York.

Stamford (Conn.) Rubber Supply Co.

Sterling Mfg. Co., Gloucester, Mass.

Type & King, London, England.

Wing & Co., C. S. Wollaston, Mass.

Sulphur.

Battelle & Renwick, New York.

T. & S. C. White Co., New York.

Sulphur Chloride.

Katzbach & Bullock Co., Trenton, N. J.

William H. Scheel, New York.

George W. Speaight, New York.

Stamford (Conn.) Rubber Supply Co.

Tripoli.

American Tripoli Co., Seneca, Mo.

Oxford-Tripoli Co., Ltd., N. Y.

Waxes.

American Wax Co., Boston.

Whiting.

H. F. Taintor Mfg. Co., New York.

Zinc, Oxide of.

New Jersey Zinc Co., New York.

Zinc Substitute.

Aluminum Flake Co., Akron, O.

Zinc Sulphide.

Joseph Cantor, New York.

Type & King, London, England.

BUYERS' DIRECTORY FOR RUBBER TIRES AND ACCESSORIES.**Auto Top Fabrica.**

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Fabrics.

Hewins, E. D., Boston.
Lane & Co., J. H., New York.
L. J. Muttly Co., Boston.
National India Rubber Co., Bristol, R. I.
J. Spencer Turner Co., New York.

Insulated Wires.

The Indiana Rubber and Insulated Wire Co., Jonesboro, Indiana.

National India Rubber Co., Bristol, R. I.

Mats, Automobile.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co., Cambridge, Mass.

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Manhattan Rubber Mfg. Co., New York.

Massachusetts Chemical Co., Walpole, Mass.

National India Rubber Co., Bristol, R. I.

N. J. Car Spring & Rubber Co., Jersey City, N. J.

Revere Rubber Co., Boston, Mass.

Repair Stock.

Continental Rubber Works, Erie, Pa.
Manhattan Rubber Mfg. Co., Passaic, N. J.
Mattson Rubber Co., Lodi, N. J.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Thermoid Rubber Co., Trenton, N. J.

Rims, Wheel.

Goodrich Co., B. F., Akron, Ohio.

Tires.

Bailey & Co., C. J., Boston, Mass.
Canadian Rubber Co., of Montreal, Ltd.
Continental Rubber Works, Erie, Pa.
Dunlop Tire & Rubber Goods Co., Toronto.
Empire Rubber Mfg. Co., Trenton, N. J.
Goodrich Co., B. F., Akron, Ohio.
Gutta Percha & Rubber Mfg. Co., Toronto.
The Indiana Rubber and Insulated Wire Co., Jonesboro, Indiana.
Kokomo Rubber Co., Kokomo, Ind.
Mattson Rubber Co., Lodi, N. J.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Pirelli & Co., Milan, Italy.
Springfield Tire & Rubber Co., Springfield, O.

Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, Ohio.
Thermoid Rubber Co., Trenton, N. J.

Automobile and Carriage.

Ajax-Grieb Pub. Co., Trenton, N. J.
Boston Belting Co., Boston-New York.
McGraw Tire & R. Co., E. Palestine, O.
Revere Rubber Co., Boston-New York.

Tire Fabrics.

Buffalo Textile Co., Buffalo, N. Y.
Lane & Co., J. H., New York.
L. J. Muttly Co., Boston.
J. Spencer Turner Co., New York.

Tire Repairing.

Voorhees Rubber Mfg. Co., Jersey City, N. J.

Treads.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co., Cambridge, Mass.

Manhattan Rubber Mfg. Co., New York.

Morgan & Wright, Detroit, Mich.

N. J. Car Spring & Rubber Co., New Jersey, N. J.

Revere Rubber Co., Boston, Mass.

Valves, Tire.

Schrader's Sons, Inc., A., New York.

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MINNEAPOLIS, MINN., 322 First Ave., North
NEW ORLEANS, LA., 700 Baronne Street
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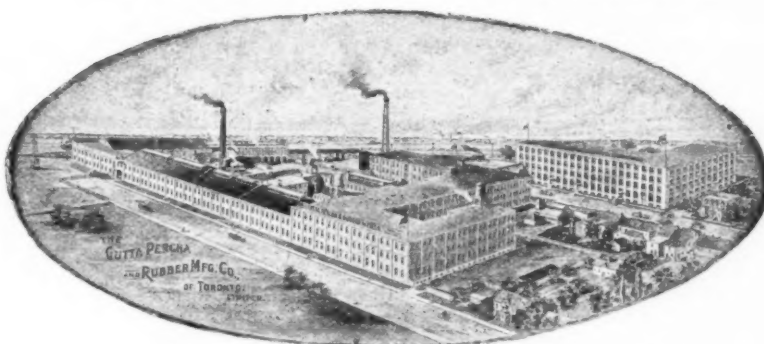
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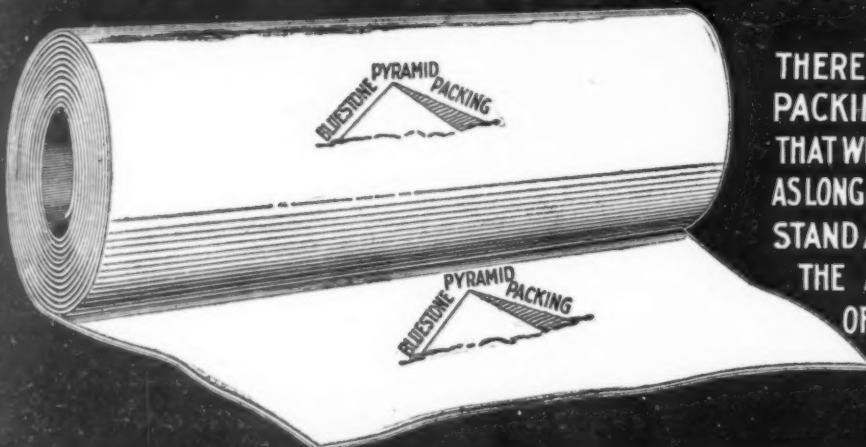
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